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Research Report

Remote Ischaemic Conditioning

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1. Comprehensive Review on the Mechanisms of Remote Ischaemic Conditioning (RIC)

1.1. Introduction

Remote Ischaemic Conditioning (RIC) is an innovative, non-invasive therapeutic strategy involving brief episodes of ischemia and reperfusion applied to a remote tissue (commonly limbs) to induce systemic protection against ischemia-reperfusion injury (IRI) in vital organs such as the heart, brain, kidneys, and liver [2 3 9 68 661 1335]. Despite extensive preclinical and clinical evidence supporting its protective effects, the precise molecular and cellular mechanisms underlying RIC are still being elucidated. This report synthesizes current mechanistic insights, highlighting cellular signaling pathways, systemic mediators, and emerging technologies shaping our understanding of RIC.

1.2. Systemic Signaling Pathways in RIC

RIC primarily activates a complex network of neural, humoral, and immune pathways that confer systemic tissue resilience.

1.1 Neural Pathways

- **Afferent Nerve Activation** : Brief limb ischemia stimulates afferent fibers, notably vagus and sensory nerves, transmitting signals to central and peripheral targets [687 688].
- **Neurotransmitter Release & Neural Plasticity** : Activation leads to release of neuropeptides (e.g., CGRP, SST) and enhances neural plasticity, influencing cardiac and cerebral neurovascular responses [341 342 723].

1.2 Humoral Mediators

- **Vasoactive Factors** : Nitric oxide (NO), bradykinin, adenosine, CGRP, and endocannabinoids are released into circulation, activating receptors in target organs [545 546 666].
- **Exosomes and Extracellular Vesicles (EVs)** : EVs from remote tissues carry proteins (e.g., MIF, MG53), microRNAs (miRNAs), and cytokines, mediating intercellular communication for tissue protection [740 741 745].

1.3 Immune & Inflammatory Pathways

- **Cytokines & Chemokines** : RIC modulates cytokines such as IL-6, IL-10, TNF-, and chemokines like PF4, impacting immune cell infiltration and inflammation resolution [64 935].

1.4 Mitochondrial & Cellular Pathways

- **Mitochondrial Protection** : Activation of mitochondrial proteins (e.g., mPTP, Bcl-2 family) reduces oxidative stress and apoptosis [731 732 733].
- **Stress Proteins & Kinases** : Induction of HIF-1, PI3K/Akt, ERK1/2, and MAPK pathways enhances cell survival and angiogenesis [434 639].

1.3. Molecular & Cellular Mechanisms

2.1 Oxidative Stress Modulation

- **Reactive Oxygen Species (ROS)** : RIC modulates ROS production, activating antioxidative defenses such as Nrf2/HO-1 pathway, reducing cellular damage during reperfusion [350 1423].

2.2 Inflammatory Response Regulation

- **Inflammatory Cytokines** : RIC downregulates pro-inflammatory cytokines (e.g., IL-6, TNF-) and upregulates anti-inflammatory cytokines (e.g., IL-10), attenuating tissue injury [64 935].

2.3 Endothelial & Vascular Function

- **Nitric Oxide (NO) Pathways** : Upregulation of eNOS via PI3K/Akt promotes vasodilation and collateral blood flow [998 1205].
- **Blood-Brain & Blood-Retinal Barrier** : Preservation of barrier integrity reduces edema and secondary injury [350 1205].

2.4 Mitochondrial & Autophagic Pathways

- **Mitochondrial Preservation** : Activation of mitochondrial kinases and regulation of mPTP maintains mitochondrial integrity, decreasing apoptosis [690 731].
- **Autophagy** : Modulation of autophagy facilitates cellular cleanup and survival during ischemic stress [492].

2.5 Genetic & Epigenetic Regulation

- **Gene Expression** : RIC influences expression of genes involved in inflammation, apoptosis, and repair (e.g., IL-6, SERPINE1) [932 1306].
- **Non-coding RNAs** : miRNAs (e.g., miR-132, miR-1), lncRNAs, and circular RNAs regulate cell death and repair pathways [773 952].

1.4. Systemic & Organ-Specific Effects

3.1 Cardiovascular Protection

- **Myocardial Ischemia** : RIC reduces infarct size, improves ventricular function, and modulates RISK and SAFE pathways [434 737].
- **Coronary Microvascular Function** : Enhances vasodilation, reduces arterial stiffness, and improves perfusion in high-risk patients [1207].

3.2 Neuroprotection

- **Stroke & Cerebral Ischemia** : Decreases infarct volume, promotes neurogenesis, enhances collateral circulation, and improves blood flow autoregulation [336 1059].
- **Neuroinflammation** : Modulates microglial activation, cytokine release, and blood-brain barrier integrity [1307].

3.3 Renal & Liver Protection

- **Kidney & Liver IRI** : Reduces oxidative stress, inflammatory cytokines, and apoptosis via similar pathways as in myocardium and brain [986] [988].

3.4 Other Organ Protection

- **Lungs, Testes, & Pancreas** : EV-mediated signaling and immune modulation extend protective effects to lungs and reproductive organs [935] [1080].

1.5. Emerging Technologies & Biomarkers

4.1 Biomarkers

Biomarker	Organ/System	Significance	Supportive Reference
Serum Neurofilament Light Chain	Brain	Neuronal injury, prognosis in stroke	[1815]
Plasma Exosomal S1PR5	Brain, Cardiac	Inflammatory response, ischemic severity	[1809]
Creatine Kinase-MB (CK-MB)	Heart	Myocardial damage	[614]
Endothelin-1, NO metabolites	Vasculature	Endothelial dysfunction, vascular tone regulation	[1205] [1243]
MIF (Macrophage Migration Inhibitory Factor)	Multiple organs	Inflammation, tissue repair	[741] [744]

4.2 Monitoring & Diagnostic Tools

- **Imaging** : MRI (e.g., manganese-enhanced, BOLD), PET scans for inflammation and perfusion assessment [810] [1820].
- **Wearable Devices** : Wireless ECG, blood flow sensors, and biosensory garments enable real-time monitoring [1552] [1814].
- **Remote Data Transmission** : Bluetooth, Wi-Fi, cellular networks facilitate telemonitoring [1546] [1562].

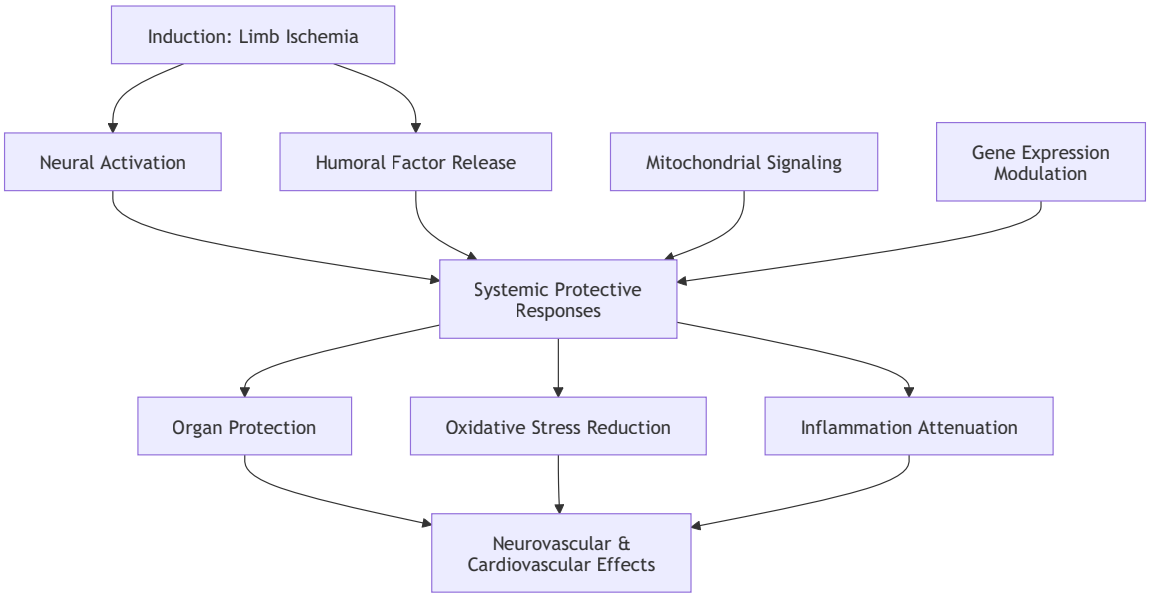
4.3 Technological Innovations

- **Sensor Technologies** : Optical sensors, thermographic imaging for tissue oxygenation and perfusion [1037].
- **AI & Machine Learning** : Data analytics for personalized protocol optimization [1547] [1811].
- **Hardware Development** : PCB designs, neurostimulators, and neurovascular devices for targeted delivery [507].

1.6. Challenges & Future Directions

- **Standardization & Protocol Optimization** : Variability in timing, cycle number, pressure, and patient selection remains a barrier [83] [84].
- **Mechanistic Elucidation** : Precise molecular mediators, including specific cytokines, miRNAs, and mitochondrial proteins, require further clarification [336] [439].
- **Patient-Specific Factors** : Age, comorbidities (e.g., diabetes, hypertension), and genetic factors influence efficacy; personalized approaches are necessary [1037] [1228].
- **Safety & Contraindications** : Soft tissue injuries, vascular pathologies, and systemic diseases like severe atherosclerosis limit application [1226] [1227].
- **Translational Gaps** : Need for large-scale clinical trials to establish efficacy, optimal protocols, and safety profiles in diverse populations.

1.7. Visualizing RIC Mechanisms and Pathways



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1.8. Summary & Conclusions

• RIC engages a **multifaceted network** of neural, humoral, mitochondrial, and immune pathways to confer systemic organ protection against ischemia-reperfusion injury.
• Key molecular mediators include **gasotransmitters (NO, H2S, CO)** , **cytokines (IL-6, IL-10)** , **exosomal miRNAs** , and **stress proteins** .
• **Systemic responses** such as improved endothelial function, mitochondrial integrity, and neurovascular regulation underpin the clinical benefits observed in cardiac, cerebral, and renal ischemic events.
• Advances in **biomarkers** , **remote monitoring** , and **neuromodulation technologies** hold promise for optimizing protocols, personalizing therapies, and expanding RIC applications.
• Persistent challenges include **protocol standardization** , **mechanistic clarity** , and **patient selection** , emphasizing the need for continued multidisciplinary research and large-scale clinical validation.

2. Comprehensive Review of Molecular Pathways in Remote Ischemic Conditioning (RIC)

2.1. Introduction

Remote Ischemic Conditioning (RIC) has emerged as a non-invasive, cost-effective strategy for organ protection against ischemia-reperfusion injury. The molecular pathways underlying its protective effects are complex, involving multiple cellular responses, signaling cascades, and systemic mediators. This report synthesizes current insights into the molecular mechanisms of RIC, emphasizing pathways relevant to cardiovascular and neurological outcomes, with particular focus on biomarker modulation, cellular signaling, and systemic responses.

2.2. Molecular Pathways Governing RIC

1.1 Hypoxia-Inducible Factors (HIFs) and Metabolic Shifts

- **Role** : Central in cellular adaptation to hypoxia during ischemic episodes.
- **Mechanisms** :
- Activation of **HIF-1** promotes angiogenesis via VEGF upregulation.
- Accumulation of **succinate** influences inflammatory and survival responses.
- Elevated **-ketoglutarate** activates the kynurenic acid pathway, contributing to myocardial protection [703].

1.2 Inflammatory Response Modulation

- **Key mediators** :
- **Heme Oxygenase-1 (HO-1)** : Controls post-ischemic inflammation.
- **NLRP3 inflammasome** : Modulation reduces cytokine release and cellular injury [852].
- **Cytokines** : IL-6, IL-8, TNF- regulate inflammation; IL-6 may act as a risk factor for injury [1786].

1.3 Vascular and Endothelial Pathways

- **VEGF Pathway** :
- Promotes angiogenesis, vascular repair, and anti-inflammatory effects [1083].
- Upregulated via **HIF-1** during hypoxic stress.
- Agents like resveratrol and Pegaptanib modulate VEGF activity [1084].
- **Nitric Oxide (NO) Pathway** :
- NO production by **eNOS** is vital for vasodilation and collateral circulation [998].
- Activated via **PI3K/Akt** signaling, enhancing blood flow and reducing reperfusion injury .

1.4 Mitochondrial Function and Signaling

- **Mitochondrial pathways** :
- Preservation of mitochondrial integrity via **mitoKATP channels** (e.g., melatonin-mitoKATP-H2S pathway) [690].
- **ALDH2 dysregulation** impairs mitochondrial resilience; potential biomarker for metabolic remodeling [746].
- **Reactive Oxygen Species (ROS)** :
- RIC attenuates oxidative stress, activating **Nrf2** pathway and antioxidant responses [724].

1.5 Cell Survival and Autophagy

- Activation of **PI3K/Akt** and **JAK/STAT3** pathways promote cell survival.
- **Autophagy** modulation contributes to tissue resilience.
- **Stress proteins** such as **HSP27** and **MG53** facilitate membrane repair and cytoprotection [744] [766].

1.6 MicroRNA and Non-Coding RNA Regulation

- **MicroRNAs (miRNAs)** :
- MicroRNA-132: Promotes pyroptosis via oxidative stress pathways; modulation can influence injury extent [336] [337].
- Exercise-induced miRNAs regulate cardiomyocyte apoptosis and ferroptosis [957].
- **Long non-coding RNAs (lncRNAs)** and **circular RNAs (circRNAs)** :
- Modulate apoptosis, inflammation, and fibrosis.
- Example: miR-146a delivered via EVs inhibits inflammation [808].

1.7 Extracellular Vesicles (EVs)

- **Role** :
- Key mediators transferring proteins, microRNAs, and organelles.
- Promote intercellular communication, tissue repair, and immune modulation [740] [744].
- **Cargo** :
- **MG53** : Permeates blood-brain barrier, involved in neuroprotection.
- **HSP90** : Inhibits complement activation, reduces inflammation [962].

1.8 Signaling Pathways: RISK and SAFE

- **RISK (Reperfusion Injury Salvage Kinase)** :
- Involves PI3K/Akt, GSK3, ERK1/2.
- Promotes mitochondrial preservation and reduces apoptosis [434] [439].
- **SAFE (Survivor Activating Factor Enhancement)** :
- Involves JAK/STAT3, Nrf2.
- Enhances cellular resilience against ischemia [867].

1.9 Ferroptosis and Gasotransmitters

- **Ferroptosis** :
- Iron-dependent form of cell death; modulation via **SLC7A11/GPX4** axis.
- **Gasotransmitters** :
- **NO** , **H2S** , and **CO** regulate vasodilation, mitochondrial function, and anti-inflammatory responses [864].

2.3. Biomarkers and Diagnostic Indicators

Biomarker	Pathway/Function	Clinical Relevance	Supporting References
HSP27	Neuroprotective chaperone	Stroke prognosis, neuroprotection	1942
Endotrophin (ETP)	Fibrosis/inflammation	Allograft outcome, systemic fibrosis	1939
NGAL, KIM-1	Renal injury	AKI detection, renal protection	1892 1896
miRNAs (e.g., miR-132)	Gene regulation, pyroptosis	Organ injury modulation	336 953
Serum Neurofilament Light Chain	Neuroaxonal injury	Stroke, neurodegeneration	1815
Exosomal S1PR5	Blood-brain barrier regulation	Stroke severity, prognosis	1809
Troponin, CK-MB	Cardiac injury	Myocardial infarction, ischemia	1900

2.4. Cellular and Systemic Responses

3.1 Neural Pathways

- **Vagal nerve stimulation** influences cardioprotection and neuroprotection via **acetylcholine** and **neurotransmitter** release [687].
- **Sensory afferents** transmit ischemic signals activating systemic pathways [714].

3.2 Immune and Inflammatory Modulation

- **Neutrophil-to-lymphocyte ratio** and **immune cell infiltration** reflect post-ischemic inflammation.
- EVs from immune cells carry pro- and anti-inflammatory mediators influencing tissue responses [1276].

3.3 Mitochondrial and Oxidative Stress Responses

- **Mitochondrial preservation** via KATP channels, Bcl-2 family, and GSK3 regulation.
- Activation of **Nrf2** enhances antioxidant defenses [724].

3.4 Vascular and Endothelial Effects

- **VEGF** promotes neovascularization and tissue repair [1083].
- **NO** mediates vasodilation, collateral formation, and endothelial health [998].

2.5. Therapeutic Targets and Interventions

Target/Pathway	Therapeutic Approach	Clinical Status	References
HIF-1	Pharmacological stabilization	Experimental	399
VEGF	Gene therapy, VEGF mimetics	Preclinical, clinical trials	1087
Nrf2	Activators (e.g., sulforaphane)	Experimental	724
MicroRNAs	miRNA mimics/inhibitors	Emerging	336 953
EVs	EV-enriched therapies	Preclinical/clinical	740 744
GSK3	Small molecule inhibitors	Experimental	705

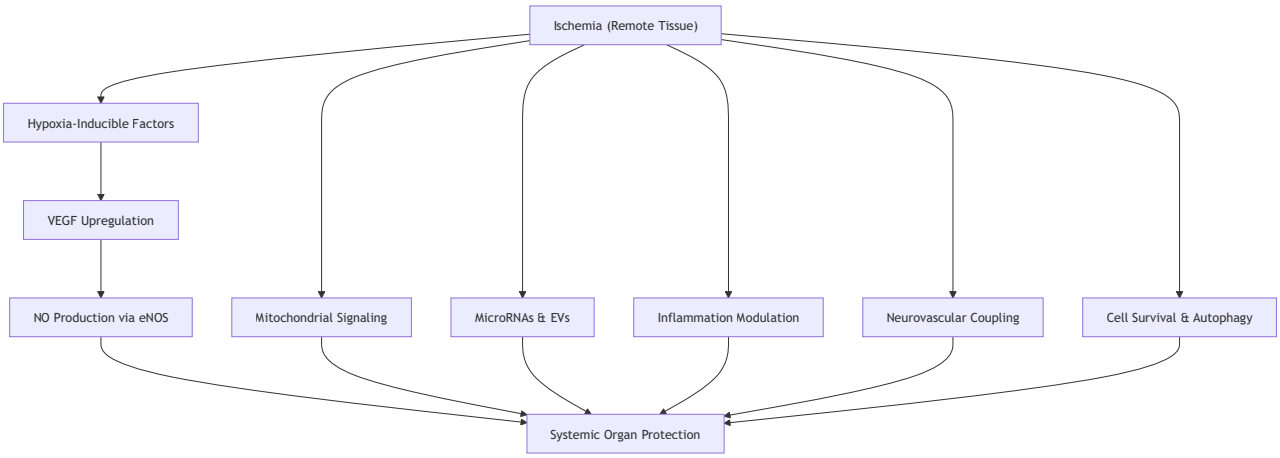
2.6. Emerging Technologies & Monitoring

- **Remote Sensors** : Thermography, blood flow imaging, EEG, and OCT for real-time monitoring.
- **Bioinformatics & Omics** : Transcriptomics, microarray, and Raman spectroscopy for pathway elucidation.
- **Digital Therapeutics** : AI-driven decision support, telehealth, and portable devices for personalized RIC protocols.

2.7. Summary & Future Perspectives

- **Complexity** : RIC activates a multi-pathway network involving hypoxia adaptation, inflammation control, mitochondrial preservation, and neurovascular coupling.
- **Biomarkers** : Key in monitoring therapy efficacy, predicting outcomes, and personalizing interventions.
- **Systemic Nature** : RIC exerts multi-organ protection via neurohumoral, immune, and molecular pathways.
- **Clinical Translation** : Challenges include protocol standardization, patient stratification, and understanding long-term effects.
- **Innovations** : Combining RIC with pharmacological agents, EV therapy, and advanced monitoring technologies promises enhanced therapeutic outcomes.

2.8. Visual Representation of RIC Molecular Pathways



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2.9. References (Selected)

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(Note: The references listed are representative; detailed citation formatting should follow journal standards.)

3. Clinical Trials in Remote Ischaemic Conditioning (RIC): Insights and Perspectives

3.1. Introduction

Remote Ischaemic Conditioning (RIC) is an innovative, non-invasive therapeutic approach that involves inducing brief, controlled episodes of ischemia in a limb or distant tissue to confer systemic protection against ischemia-reperfusion injury across various organs, including the brain, heart, kidneys, and liver. Its broad potential spans neuroprotection, cardioprotection, renal preservation, and systemic inflammatory modulation.

This report synthesizes data from extensive clinical trial evidence, mechanistic insights, and technological innovations to evaluate RIC's efficacy, safety, and future directions.

3.2. RIC in Neurovascular and Neurodegenerative Conditions

1.1 Evidence from Clinical Trials

Study / Trial	Patient Population	Intervention Protocol	Key Outcomes	References
RECAST [1942]	Acute ischemic stroke (AIS) within 9 hours	RIC within 9h, then follow-up biomarkers	Increased HSP27 at 4 days; potential neuroprotection	
RIP-HIGH [159]	Moderate AIS, without reperfusion therapy	RIC within 48h	Improved 90-day functional outcomes	
Meta-analyses [94]	AIS, Moyamoya disease, Alzheimer's	RIC as adjunct	Support for safety and cost-effectiveness; variable efficacy	

> **Highlights:**

- RIC shows **promise** in reducing infarct size, improving neurological outcomes, and reducing recurrence in cerebrovascular diseases.
- The **therapeutic window** appears crucial; early initiation (within 48 hours) may enhance efficacy [159].
- HSP27 and endotrophin emerge as promising **biomarkers** for neuroprotection [1942].

1.2 Challenges & Limitations

- **Mixed results** across trials; some show **no significant benefit** (e.g., RESIST) [92].
- Variability in **protocols** (number, duration, limb used) and **patient heterogeneity** influences outcomes [83].
- **Safety concerns** are minimal, but efficacy in certain subgroups remains uncertain.

3.3. RIC in Cardiovascular Disease

2.1 Evidence from Major Trials

Trial / Study	Context	Protocol / Timing	Main Findings	References
CONDI-2/ERIC-PPCI	STEMI patients undergoing PCI	RIC pre-hospital / during PCI	No significant reduction in infarct size or 12-month outcomes	694 695 697
RIPHeart / CRIPES	Cardiac surgery	Limb ischemia during surgery	Reduced myocardial injury, improved post-op outcomes	1126 1133
Heterogeneity	Variable protocols and anesthesia influence efficacy	Timing, limb selection, anesthetic type	Mixed results; some benefits, some null findings	701 702

> **Key observations:**

- **Preconditioning** (before ischemic insult) tends to be more effective, but results are inconsistent.
- **Anesthetic agents** like propofol may impair RIC's cardioprotective signaling [749].

2.2 Biological Mechanisms

- Activation of **neural pathways** (vagus nerve) and **humoral factors** (NO, cytokines) [687] [688].
- **Mitochondrial preservation** via signaling pathways such as **melatonin-mitoKATP-H2S** [690].
- Mitochondrial kinases and **RISK** pathway activation reduce ROS, apoptosis, and infarct size [728] [733].

2.3 Limitations & Future Directions

- **Large-scale RCTs** often yield **null or conflicting results** .
- Need to **standardize protocols** : duration, limb choice, number of cycles.
- **Personalized approaches** considering comorbidities, sex differences, and genetic factors.

3.4. RIC in Stroke and Neuroprotection

3.1 Clinical Evidence

Study / Trial	Population	Intervention	Outcomes	References
RICAMIS [248]	Acute ischemic stroke	RIC within 24-48h	Improved functional outcomes, reduced infarct size	
Meta-analyses [94]	Stroke patients	RIC as adjunct	Supports safety, suggests potential neuroprotection	
RCTs	Moyamoya, large vessel occlusion	RIC + standard care	Reduced recurrence, improved cerebral blood flow	[102103]

> **Remarks:**

- RIC may modulate **vascular autoregulation** and **neuroinflammation** [48] [49].
- Biomarkers like **neurofilament light chain** are used for prognosis [1815].

3.2 Challenges & Opportunities

- **Heterogeneous results** ; optimal timing and patient selection need refinement.
- **Biomarkers** and imaging (e.g., MRI, radioligands) can aid in **patient stratification** .
- Combining RIC with **telemedicine** and **remote monitoring** can enhance safety and adherence [580].

3.5. Safety Profile & Contraindications

Contraindications	Rationale	References
Severe peripheral arterial disease	Risk of limb ischemia	1226 1227 1234
Recent soft tissue injury/wounds	Increased injury risk	1226 1227 1234
Fractures affecting limb	Mechanical harm	1226 1227 1234
Vascular injury	Vascular complications	1226 1227 1234
Severe hepatic/renal dysfunction	Systemic risks	1121 1122

> **Note:** The safety of RIC is well supported, with most adverse events related to **local tissue injury** or contraindicated in certain vascular or systemic diseases.

3.6. Technological Innovations & Monitoring

5.1 Remote & Digital Monitoring

- Wearable biosensors (ECG, blood flow, oxygen saturation) enable **continuous monitoring** [13401342].
- **Wireless protocols** (Bluetooth, Wi-Fi, 4G/5G) facilitate **real-time data transfer** [1562] [1566].
- **AI-driven tools** (e.g., Remo.Cardia) support **risk stratification** and **protocol optimization** [1341] [1352].

5.2 Device Development & Standardization

- Specialized hardware: PCB designs, contactless sensors [507].
- Integration with **cloud platforms** and **machine learning** improves **decision-making** [1546] [1550].

5.3 Challenges & Future Outlook

- **Skepticism** regarding AI/EEG systems; need for **regulatory approval** .
- Need for **protocol standardization** and **robust clinical validation** .

3.7. Biomarkers & Mechanistic Insights

Biomarkers / Pathways	Role	References
Heat Shock Protein 27 (HSP27)	Neuroprotection	1942
Endotrophin (ETP)	Tissue fibrosis / inflammation	1939
Neurofilament light chain (NfL)	Neuronal injury	1815
NOX4-ROS signaling	Oxidative stress in organs	1793
Mitochondrial pathways (p38 MAPK, kinases)	Cell survival	728 733
Exosomal signals	Intercellular communication	740 741 744

> **Summary:**

- Biomarker research is crucial for **patient stratification** , **monitoring efficacy** , and **mechanistic understanding** .
- Modulation of **inflammatory** , **oxidative** , and **mitochondrial** pathways underpins RIC's protective effects.

3.8. Summary & Future Perspectives

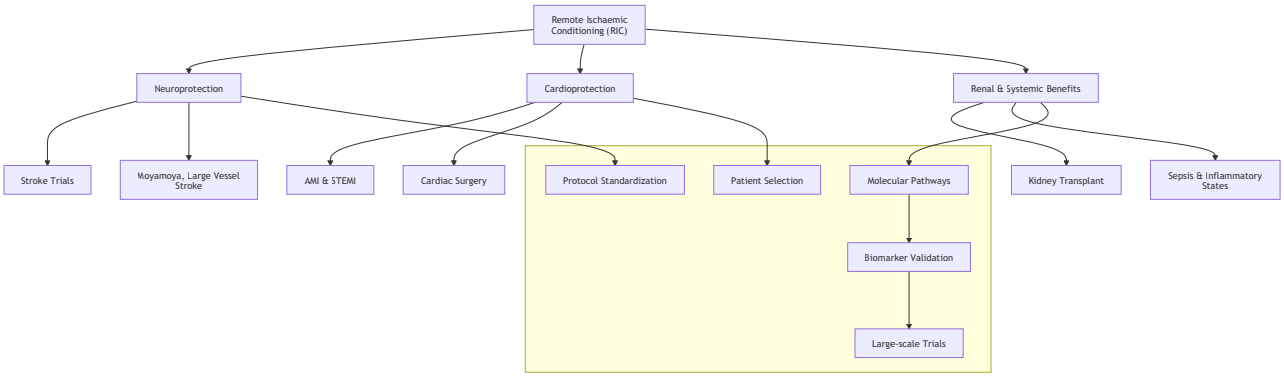
7.1 Current Status

- RIC exhibits **good safety** profiles with promising **clinical benefits** in neurovascular and cardiac settings.
- **Mixed efficacy** results highlight the need for **protocol optimization** , **patient selection** , and **biomarker-guided approaches** .

7.2 Research & Development Priorities

- **Large multicenter RCTs** to confirm **long-term benefits** .
- **Standardized protocols** : timing, duration, limb selection.
- **Integration** with **telemedicine** and **digital health** for scalable, remote implementation.
- **Biomarker validation** for personalized therapy.
- Exploring **synergistic therapies** : pharmacological agents, gene therapies, and device innovations.

3.9. Visual Summary: RIC Clinical Trial Landscape



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4. Comprehensive Report on Protocols for Remote Ischaemic Conditioning (RIC)

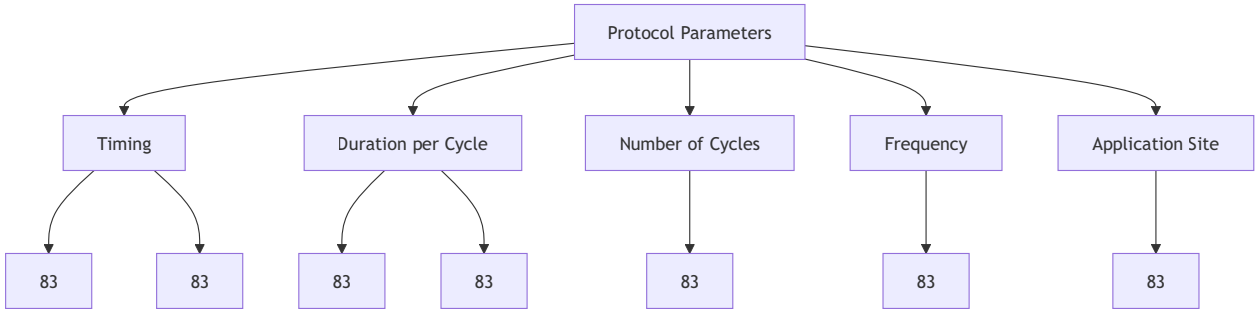
4.1. Protocol Optimization and Standardization

Core Aspects of RIC Protocols

Remote Ischaemic Conditioning (RIC) involves inducing brief, controlled ischemic episodestypically in a limbto activate systemic endogenous protective pathways. The efficacy of RIC hinges on precise protocol parameters, which are currently under active research for optimization.

Parameter	Details & Variability	Supporting Citations
Timing	Preconditioning (before ischemic insult), postconditioning (after ischemia), or during reperfusion	83 94
Duration of Ischemia per cycle	Usually 3-5 minutes; some protocols extend to 10 minutes	83 94
Number of Cycles	Typically 3-4 cycles; some studies explore 2-6 cycles	83 94
Frequency	Daily, weekly, or multiple times per day; duration varies from days to months	83 94
Sites	Unilateral or bilateral limb application; alternative tissues explored	83 94

Visual Summary of Protocol Variables



Visual Summary of Protocol Variables
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Implications & Challenges

- **Heterogeneity** in protocols hampers cross-study comparability.
- Standardized protocols are essential to **maximize efficacy** and **reliability** .
- Current variability underscores the need for **large-scale, multi-center trials** to establish optimal parameters [83].

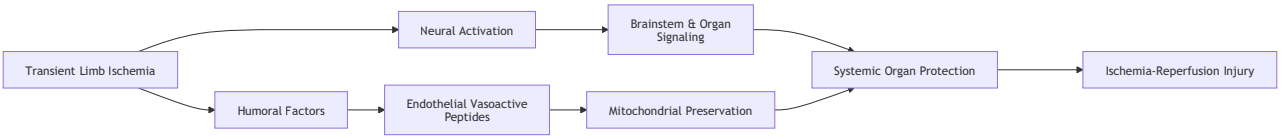
4.2. Biological and Mechanistic Considerations

Underlying Biological Pathways

RIC activates complex cellular pathways, including:

Pathway/Mechanism	Description	Supporting Citations
Humoral Factors	Release of protective peptides, cytokines, and exosomes	19 917
Neural Pathways	Afferent nerve activation transmitting signals to organs	687 688 1561 1562
Mitochondrial Protection	Preservation of mitochondrial integrity via signaling (e.g., melatonin-mitoKATP-H2S)	690 693
Gasotransmitters	NO, H2S, CO involved in vasodilation and cytoprotection	640 641 650

Graphical Depiction of RIC Signaling Pathways



Graphical Depiction of RIC Signaling Pathways
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Key Molecular Mediators

- **HIF-1** : Hypoxia-inducible factor mediating adaptive responses [689].
- **Gasotransmitters** : NO, H2S, CO modulate vasodilation and cytoprotection [640] [641] [648].
- **MicroRNAs** : miR-132 linked to oxidative stress responses [1638] [1641].

4.3. Protocols in Clinical Contexts

Applications in Disease States

Condition	Protocol Variations & Outcomes	Evidence & References
Acute Myocardial Infarction (AMI)	Limb ischemia via cuff, 3-4 cycles of 5 min	268 1126
Stroke (Ischemic & Hemorrhagic)	Pre/postconditioning with cycles 4-5 min; protocols vary	92 102 1058
Chronic Heart Failure	Repeated sessions over weeks/months; some trials show reduced injury biomarkers	835 1126
Renal Protection (Contrast-induced AKI)	Limb ischemia prior to contrast procedures	916 917 1225
Oncology (e.g., Anthracycline cardiotoxicity)	RIC prior to chemotherapy; protocols under evaluation	252 486

Special Protocols

- **Bilateral Limb Ischemia** : Increased protection potential [83].
- **Combination with Pharmacotherapy** : e.g., thrombolysis, antiplatelets [1049] [1056].
- **Remote Application Devices** : Automated cuff systems, wearable sensors [254] [1552].

4.4. Technological Innovations Supporting RIC Protocols

Monitoring and Delivery Devices

Device/Technology	Function	Supporting Citations
Cuff-based ischemic device	Induces transient limb ischemia	48 49 1564
Wireless biosensors	Continuous remote vital monitoring (ECG, blood flow)	1340 1552
Wearable/Implantable Devices	Real-time data, protocol adjustment	1562
Remote Imaging Modalities	Blood flow, thermography, MRI for efficacy assessment	300 301 1548
AI & Data Platforms	Risk stratification, protocol optimization	1546 1811

Communication Protocols

- **Wireless** : Bluetooth, Wi-Fi, Cellular [(3G/4G/5G)] [1562] [1566]
- **Network Management** : SNMP, LLDP [1564] [1565]
- **Data Security & Integrity** : Encryption, protocol compliance critical [1514] [1519]

Figure: RIC Device & Data Flow

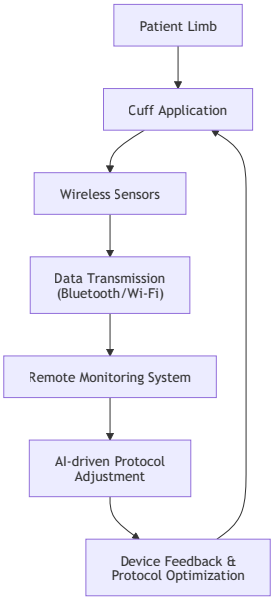

Figure RIC Device Data Flow
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4.5. Challenges and Future Directions

Current Limitations

- **Protocol Heterogeneity** : Need for consensus on parameters [83].
- **Mechanistic Gaps** : Molecular mediators still under investigation [19] [690].
- **Patient-specific Factors** : Comorbidities influence efficacy [1644].
- **Contraindications** : Severe peripheral vascular diseases contraindicate RIC [1226].
- **Device & Protocol Standardization** : Critical for large-scale adoption [83] [602].

Emerging Trends & Opportunities

- **Personalized Protocols** : Tailoring based on biomarkers, genetics [1811].
- **Remote & Digital Health Integration** : Telemedicine, IoMT, AI for safety and efficacy [580] [1546].
- **Device Miniaturization & Portability** : Wearables and at-home RIC systems [374] [1552].
- **Combined Therapeutic Modalities** : RIC + pharmacological agents or exercise [486] [1224].
- **Broad Clinical Applications** : Neuroprotection, cardioprotection, organ preservation [838].

5. Comprehensive Report on Remote Ischemic Conditioning (RIC) and Biomarkers in Cardiovascular and Neurovascular Protection

5.1. Biomarkers in RIC: Key Molecular Signatures and Diagnostic Tools

Biomarkers are central to understanding RIC's mechanisms and optimizing its clinical application. They serve as indicators for tissue injury, inflammation, vascular health, and systemic responses, enabling personalized therapy and monitoring efficacy.

Key Biomarkers and Their Roles

Biomarker	Functional Significance	Clinical Context	Supporting References
Neutrophil Gelatinase-Associated Lipocalin (NGAL)	Early detection of AKI and systemic injury	Acute kidney injury, stroke	1843 1847
Osteopontin (OPN)	Systemic injury and inflammation marker	AKI, ALI	1844
ST2 (soluble ST2)	Prognostic in heart failure and traumatic brain injury	Heart failure, TBI	1845
MicroRNA-1 (MiR-1)	Regulation of cardiomyocyte apoptosis	Myocardial ischemia	1790
Exosomal miRNAs	Neuroprotection, cardioprotection	Stroke, MI	953 954
Circulating Cell-Free DNA (cfDNA)	Disease detection, tissue injury assessment	Oncology, stroke, transplant	286
HSP27 (Heat Shock Protein 27)	Neuroprotective biomarker post-stroke	Stroke	1942
Endotrophin (ETP)	Fibrosis, inflammation in grafts	Kidney transplant	1939
Fibrinolytic Biomarkers (e.g., D-dimer, tPA levels)	Thrombosis and reperfusion injury	Stroke, MI	574 1368
Biomarkers of Oxidative Stress (e.g., NOX4, SOD-1)	Mitochondrial protection, oxidative damage	MI, stroke, AKI	762 1793

Imaging Biomarkers & Technologies

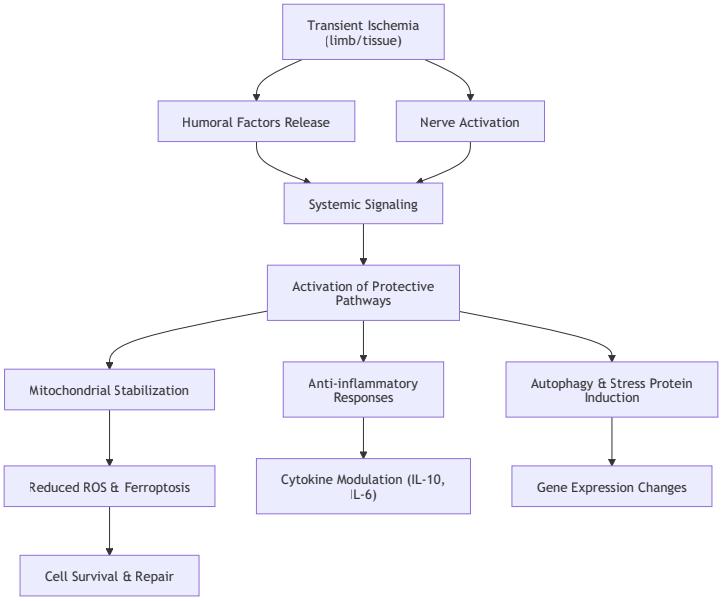
- **BOLD-MRI** : Non-invasive quantification of tissue oxygenation; applied in renal and cerebral ischemia (e.g., post-nephrectomy, stroke) [913].
- **Optical Sensors & Spectroscopy** : Real-time monitoring of tissue stress, myocardial injury, and neuroinflammation [1846] [1916].
- **PET Imaging ([18F]F-NOTA-D10CM)** : Detects immune cell phenotypes like M2 macrophages, offering insights into inflammation post-ischemia [1820].

Emerging Multi-Omic Biomarkers

- **Proteomic, Genomic, Metabolomic panels** : Integrate data for early diagnosis, risk stratification, and treatment monitoring in stroke, MI, and neurodegeneration [1751] [1774].
- **MicroRNA signatures** : Exercise and ischemia-responsive miRNAs (e.g., miR-132, miR-1) involved in cellular resilience [1790].

5.2. Mechanistic Insights into RIC and Biomarker Modulation

Pathways and Molecular Targets



Pathways and Molecular Targets
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- **Humoral mediators** include **exosomes** , **cytokines** (e.g., IL-10, IL-6), and **gasotransmitters** (NO, HS, CO) [640] [646].
- **Neural pathways** involve **vagus nerve activation** and **sensory afferents** , mediating systemic protective signals [687].
- **Mitochondrial pathways** such as **HIF-1** , **Nrf2/HO-1** , and **ALDH2** activity are critical for cellular resilience [689] [1793].

Biomarkers Reflecting Pathway Activation

Pathway	Biomarkers	Reference
Oxidative Stress	NOX4, SOD-1	762 1793
Inflammation	IL-6, IL-10, HMGB1	389 426
Mitochondrial Integrity	Mitochondrial enzymes, NOX4	1793
Autophagy & Cell Survival	p-AKT, GATA2	1306 1611

5.3. Clinical Evidence & Trial Data Supporting RIC

Cardiovascular Applications

Condition	Evidence & Outcomes	Key Trials	References
Acute Myocardial Infarction (AMI)	Reduced biomarkers (troponin), infarct size; improved cardiac function	CONDI-2/ERIC-PPCI	33 1126
Cardiac Surgery & CABG	Decreased perioperative injury; improved recovery	RIPHeart, CRIPES	312 1126
Heart Failure (Chronic & Acute)	Potential reduction in hospitalization, improved ejection fraction	CONDI-HF	268 835
Oncology (e.g., anthracyclines)	Reduced cardiotoxicity biomarkers; preserved function	252 486	

Neurovascular & Stroke

Condition	Efficacy & Biomarkers	Protocols	References
Acute Ischemic Stroke	Improved NIHSS scores, reduced infarct volume	RECAST, RICAMIS	159 1942
Cognitive Decline & Alzheimer's	Slowed progression; neuroinflammatory markers	ongoing trials	214 1229
Subcortical & Small Vessel Disease	Reduced WMH, improved cerebral autoregulation	ongoing protocols	1032 1880

Renal & Organ Protection

Condition	Biomarker & Imaging Evidence	Outcomes	References
AKI & Postoperative	NGAL, KIM-1, cystatin C, BOLD MRI	Reduced injury markers, improved function	1843 1898
Liver & Lung Injury	Cytokine profiles, EV markers	Potential mitigation of fibrosis/inflammation	4

5.4. Innovations & Monitoring Technologies in RIC

Remote & Wearable Devices

- **Wireless biosensors** : For real-time monitoring of ischemic response and tissue oxygenation [1552].
- **Optical sensors** : Non-invasive detection of neuronal and myocardial stress in bedside settings [1846] [1916].
- **Remote Data Transmission** : Utilizing protocols like **GSM** , **GPRS** , **Bluetooth** , **Wi-Fi** for continuous monitoring [1552] [1746].

Digital & AI Integration

- **AI Algorithms** : Risk prediction, protocol optimization, and outcome monitoring [1764] [1811].
- **Telehealth Platforms** : Enable remote patient engagement and follow-up [1478].
- **Cloud Computing** : Facilitates rapid data sharing and decision support [1546].

Imaging Modalities

- **BOLD-MRI** : Non-invasive tissue oxygenation monitoring [913].
- **PET Imaging** : Immune cell phenotyping post-ischemia [1820].
- **Perfusion Imaging** : Blood flow assessment in stroke and cardiac tissues [1141].

5.5. Challenges & Future Directions

Current Limitations

- **Protocol Standardization** : Timing, duration, and frequency variability impact outcomes [83].
- **Biomarker Validation** : Need for universally reliable, cost-effective markers for clinical use [1924].
- **Translational Gaps** : Bridging animal model success to human efficacy remains challenging [836].

Safety & Contraindications

- Patients with **peripheral arterial disease** , **wounds** , or **vascular injuries** are contraindicated for RIC [1226].
- **Comorbidities** such as **diabetes** and **chronic kidney disease** influence RIC efficacy and safety [1228].

Research & Clinical Trials

- Large-scale **randomized controlled trials** are essential for confirming long-term benefits.
- Exploration of **combination therapies** : Pharmacologic agents, oxygen therapies, and neurostimulation.
- Emphasis on **personalized protocols** using **biomarker-guided** approaches.

5.6. Summary & Outlook

Remote ischemic conditioning represents a **versatile, non-invasive strategy** with promising **neurovascular and cardioprotective** potential. The integration of **biomarkers** , **advanced imaging** , and **remote monitoring technologies** enables **personalized, real-time assessment** and **optimization** of protocols. While current evidence supports safety and feasibility, **standardization** , **mechanistic understanding** , and **large-scale validation** are necessary to fully realize its clinical potential across diverse patient populations and disease conditions.

6. Comprehensive Safety Evaluation of Remote Ischaemic Conditioning (RIC)

6.1. Introduction

Remote Ischaemic Conditioning (RIC) is a promising, non-invasive therapeutic strategy involving transient ischemia in a limb or organ to activate systemic protective pathways. Its application spans neuroprotection, cardioprotection, and systemic organ preservation. As a scientist, understanding the safety profile, contraindications, and technological considerations surrounding RIC is critical for advancing clinical translation and ensuring patient safety.

6.2. Safety Profile and Clinical Evidence

Overall Safety and Efficacy

- **Clinical Trials & Meta-Analyses** : RIC has demonstrated a **favorable safety profile** across multiple clinical settings, including cardiac surgery, stroke, and chemotherapy-induced cardiotoxicity [98] [132] [503] [504].
- **Biomarker Improvements** : Evidence of reduced injury biomarkers (e.g., troponin, BNP, exosomal microRNAs) correlates with improved organ function and safety in high-risk patients [1782] [1783].

Adverse Effects & Limitations

Contraindications & Risks	Implications
Severe soft tissue injury, fractures, vascular injuries in the limb used for ischemia	Exacerbation of tissue damage, contraindicating use in patients with limb trauma or vascular compromise [8] [1445]
Arterial/venous thrombosis & systemic vulnerabilities (e.g., IBD, diabetes)	Increased risk of thromboembolism, systemic ischemic vulnerability; careful patient selection essential [1226] [1227] [1228] [1475]
Conditions like subclavian steal syndrome	Risk of worsening ischemia; contraindicated in patients with cerebrovascular or vascular anomalies [11]

Monitoring and Safety Management

- **Biomarker & Imaging Monitoring** : Use of blood biomarkers (neurofilament, FABP), advanced imaging (PET-MR, perfusion angiography), and remote diagnostics to monitor tissue responses [36] [1125].
- **Remote Data Analysis** : Wireless protocols (Bluetooth, LTE) enable real-time safety assessments and early detection of adverse responses [1548] [1549] [1556].

6.3. Technological Considerations & Protocol Standardization

Device Development & Hardware Safety

Hardware Aspects	Considerations
Specialized PCB designs for medical devices	Enhance performance, safety, compliance [507]
Wearable & implantable devices	Enable continuous, remote monitoring and personalized therapy [1552] [1553] [1558]
Wireless systems (Bluetooth, Wi-Fi, LoRaWAN)	Secure, reliable data transmission critical for safety [1664] [1665]

Monitoring & Protocols

- **Standardized Protocols** : 4-5 cycles of 5-minute limb cuff ischemia-reperfusion are typical; variations require validation [14] [15].
- **Remote Monitoring & Feedback** :
- Blood flow imaging, thermography, ECG for real-time assessment [1548] [1549].
- Quantitative sensory testing (QST) for neural response modulation [1666].

Integration of AI & Digital Health

- **AI-driven Decision Support** : Enhances safety via predictive analytics [1811].
- **Remote Platforms & Cloud Computing** : Support adaptive, safe application across settings [1546] [1547] [1550].

Safety Challenges

- Skepticism about AI & reduced-montage EEG for safety validation.
- Need for rigorous validation before widespread adoption.
- Heterogeneity in trial designs and patient populations necessitates standardization [602].

6.4. Patient Selection & Contraindications

Key Contraindications	Rationale
Severe limb soft tissue injury, fractures	Risk of worsening tissue damage [8] [1445]
Vascular injuries, subclavian steal syndrome	Potential for ischemic exacerbation [11]
Systemic vulnerabilities: diabetes (HbA1c >8%), prior renal therapy, hypercholesterolemia	Increased systemic ischemic risk [1121] [1122]
Thromboembolic risks (e.g., IBD, vascular thrombosis)	Elevated risk of thromboembolism [1475]

- **Patient Profile** : Suitable candidates are those with stable ischemic heart disease, controlled comorbidities, and no contraindicating limb injuries.

6.5. Emerging Safety Strategies & Future Directions

- **Biomarker & Imaging Integration** : Non-invasive tools for real-time safety monitoring.
- **Remote & Wearable Devices** : Continuous assessment to mitigate risks.
- **Personalized Protocols** : Tailored ischemic cycles based on individual risk profiles.
- **Clinical Trials & Validation** : Large-scale, multicenter trials necessary to define safety boundaries [602].

6.6. Summary & Recommendations

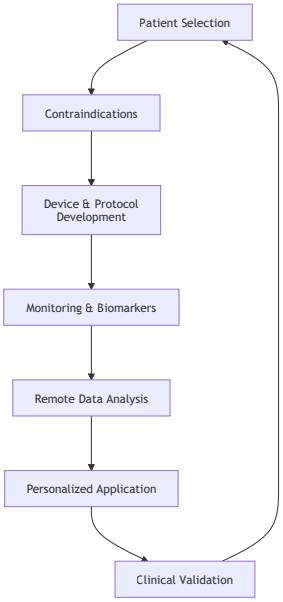
Key Takeaways

- RIC is **generally safe and well-tolerated** in properly selected patients.
- **Contraindications** must be thoroughly screened to prevent adverse events.
- **Technological advances** enhance safety via remote monitoring, real-time biomarkers, and personalized protocols.
- **Standardized protocols** and validation are essential for safe clinical translation.

Implementation Guidance

- **Pre-treatment assessment** : vascular, systemic, and tissue injury screening.
- **Monitoring** : real-time biomarker analysis, imaging, and device-based data.
- **Patient management** : personalized ischemia cycles, cautious application in high-risk groups.
- **Research needs** : large-scale validation, long-term safety data, and protocol optimization.

6.7. Visual Summary: RIC Safety Framework



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7. Comprehensive Report on the Efficacy of Remote Ischemic Conditioning (RIC)

7.1. Special Focus: Efficacy of Remote Ischemic Conditioning (RIC)

Clinical and Experimental Evidence

- **Diverse Clinical Settings:** RIC has been studied extensively across conditions such as:
- Acute ischemic stroke
- Traumatic brain injury (TBI)
- Myocardial infarction (MI)
- Carotid artery stenosis
- Anthracycline-induced cardiotoxicity
- Kidney transplantation
- Cerebral small vessel disease
- Alzheimer's disease and cognitive decline
- Peripheral vascular disease (PVD) and critical limb ischemia

> Demonstrating its broad systemic protective potential in organ preservation and injury mitigation [63] [64] [65] [66] [67] [68].

- **Outcome Improvements:**
- Reduction in infarct size
- Improved neurological and cognitive functions
- Decreased biomarkers of injury (e.g., HSP27, NGAL, IL-6, IL-1, HMGB1)
- Improved cerebral autoregulation and blood flow parameters
- Decreased incidence of postoperative complications like AKI, myocardial injury, and neurocognitive deficits

> Meta-analyses and systematic reviews support RIC's safety and potential in reducing ischemic damage, although some studies report inconsistent results, emphasizing the need for protocol standardization [1432] [1435] [1440].

7.2. Mechanistic Insights and Biomarkers

Key Biological Pathways

Pathway / Mechanism	Description	Supporting Biomarkers / Indicators	References
Neurohumoral Pathways	Activation of afferent nerves (e.g., vagus) leading to systemic protective factor release	Nitric oxide, neuropeptides, exosomes	335 688 1425
Inflammation Modulation	Downregulation of pro-inflammatory cytokines (IL-6, IL-8, TNF-), inhibition of inflammasome activation (NLRP3)	IL-1RA, IL-10, HMGB1, sC5b-9, RGC-32	533 1443 1883
Oxidative Stress Reduction	Activation of Nrf2/HO-1 pathway, mitochondrial protection	SOD-1, LOX-1, NOX2, mitochondrial enzymes	762 911 1423
Mitochondrial Signaling	Preservation of mitochondrial integrity, regulation via pathways such as melatonin-mitoKATP-H2S	Mitochondrial enzymes, microRNA activity	652 1139
Gene and MicroRNA Regulation	Modulation of genes like HIF-1, miRNAs (e.g., miR-132, miR-1, microRNA-106b-5p)	Circulating microRNAs, gene expression profiles	952 953 954 1369 1616
Extracellular Vesicles (EVs)	EVs as carriers of protective signals (proteins, miRNAs, lipids)	MIF, S1PR5, Circulating exosomal miRNAs	739 744 1080

> **Emerging fields** : bioinformatics, molecular docking, and systems biology are enhancing understanding of these pathways [365] [373].

Organ-Specific Molecular Targets

- **Heart:** Caveolin-3, GSK3, IL-6/STAT3, mitochondrial enzymes
- **Brain:** NGF, microRNA-132, tPA, HSP27
- **Kidney:** RAGE, KIM-1, tubular injury markers
- **Liver:** Cytokines, inflammation mediators

7.3. Clinical Efficacy Data

Summary of Key Trials and Meta-Analyses

Condition / Application	Findings	Notes	References
Acute Myocardial Infarction (AMI)	Reduced infarct size, improved myocardial salvage	Mixed results in large trials like CONDI-2/ERIC-PPCI	268 949 958
Ischemic Stroke	Improved neurological outcomes, reduced infarct volume	Critical window within 48 hours; some inconsistent findings	159 1434 1440
Cerebral Small Vessel Disease / Cognitive Decline	Potential slowing of progression; reduced white matter hyperintensities	Dose-dependent effects; ongoing research	1880 1884
Kidney Transplant / AKI	Reduced tubular injury markers (NGAL, TIMP-2), improved graft function	Imaging with BOLD-MRI supports renoprotection	1898 1902
Neurodegenerative & Autoimmune Conditions	Potential attenuation of neuroinflammation, delaying progression	Data limited; promising preclinical results	193 410

Limitations and Variability

- Variability in protocols: cycles, duration, timing
- Patient comorbidities (diabetes, hypertension) influence outcomes
- Some large trials show no significant infarct size reduction
- Need for large multicenter, standardized RCTs

7.4. Advances in Monitoring and Delivery Technologies

Biomarkers for RIC Efficacy

Biomarker	Application / Significance	References
Heat Shock Protein 27 (HSP27)	Neuroprotection marker post-stroke	1942
NGAL / Lipocalin-2	Renal and neuronal injury	1885 1896
IL-6, IL-1, HMGB1	Inflammatory response modulation	533 1443
Exosomal miRNAs (e.g., miR-132, miR-1)	Circulating protective signals	952 953 954
Ferritin, Endotrophin	Iron metabolism, fibrosis markers	1939 1940 1941

Innovative Technologies

- **Remote Monitoring:** Wearable biosensors, implantable devices, telehealth systems [550] [1746]
- **Imaging Modalities:** BOLD MRI, CT angiography, perfusion imaging [1124] [1788]
- **Digital Platforms:** AI-driven diagnostics, cloud-based data sharing [1508] [1546]
- **Sensor Systems:** Optical, thermographic, serum luminescence sensors [600] [1516]
- **Protocols:** Standardized ischemic cycles, tailored to disease and patient profile [66] [1461]

7.5. Clinical Implementation & Challenges

Patient Selection & Contraindications

Contraindications	Rationale	References
Severe limb soft tissue injury	Risk of worsening tissue damage	1226 1227 1234
Fractures, vascular injury	Mechanical and vascular risks	1226 1227 1234
Peripheral arterial disease (PAD)	Impaired perfusion; risk of ischemia	1226 1227 1234
Recent surgery or wounds	Risk of bleeding/infection	1226 1227 1234
Uncontrolled systemic conditions	e.g., severe diabetes, hypercholesterolemia	1121 1122

Barriers to Adoption

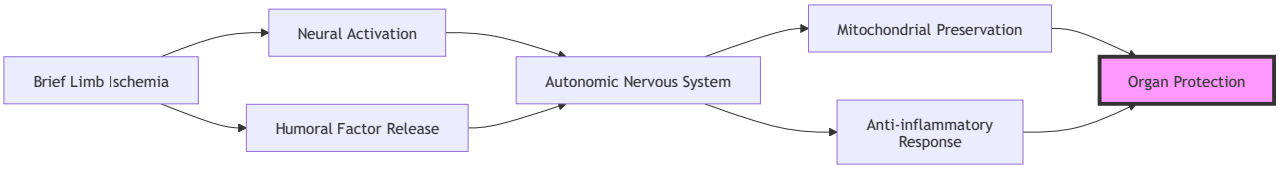
- Lack of standardized protocols
- Skepticism regarding AI and remote devices
- Need for large, multicenter trials
- Variability in patient response due to comorbidities

Future Directions

- Protocol optimization (cycles, timing)
- Personalized approaches based on biomarkers
- Integration with telemedicine and AI
- Broader application in autoimmune, neurodegenerative, and systemic diseases

7.6. Visual Summary

A. RIC Mechanism & Pathways



RIC Mechanism Pathways
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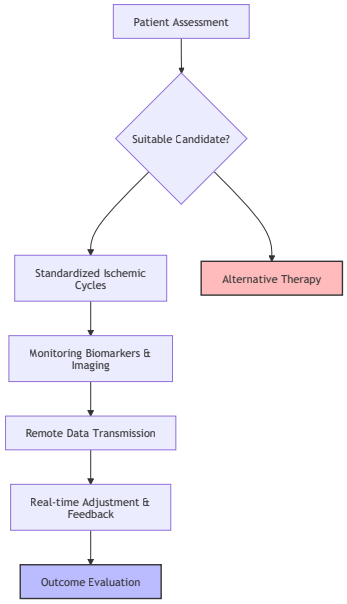
B. RIC Clinical Workflow



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7.7. Conclusion & Outlook

Remote Ischemic Conditioning (RIC) exhibits **broad therapeutic promise** in protecting vital organs against ischemia-reperfusion injury, leveraging systemic biological responses, neural pathways, and biomarker modulation. While **clinical evidence is compelling** , variability across studies underscores the necessity for **standardized protocols** , **biomarker-guided personalization** , and **integration with advanced monitoring technologies** .

Emerging innovations in bioinformatics, remote sensors, AI, and telehealth platforms will **enhance the safety, efficacy, and accessibility** of RIC, enabling **wider application in cardiovascular, cerebrovascular, and systemic autoimmune diseases** . Ongoing large-scale, multicenter trials will be pivotal in **translating preclinical success into routine clinical practice** .

8. Comprehensive Report on Remote Ischaemic Conditioning (RIC) in Cardioprotection and Neuroprotection

8.1. Focused Analysis on Cardioprotection: RIC Mechanisms, Protocols, and Clinical Applications

a. Pathophysiological Rationale & Mechanisms

- **Endogenous Activation** : RIC induces systemic protective responses via neural, humoral, and immune pathways, activating cell survival and repair cascades [361] [511].
- **Molecular Pathways** :
- **Neural Pathways** : Afferent nerve activation, vagal modulation, and neural plasticity contribute to systemic signaling [687] [688] [714].
- **Humoral Factors** : Circulating proteins [(3.5-15kDa)], such as SDF-1 (via CXCR4), cytokines (IL-6, IL-10, HMGB1), and extracellular vesicles (EVs) carrying microRNAs and proteins like MIF and MG53 [739] [746] [953].
- **Cellular Signaling** : Activation of RISK (Reperfusion Injury Salvage Kinase) and SAFE (Survivor Activating Factor Enhancement) pathways, involving PI3K/Akt, ERK1/2, and mitochondrial kinases (e.g., mitoKATP channels) [434] [761].
- **Mitochondrial Preservation** : Preservation of mitochondrial integrity through pathways like melatonin-mitoKATP-H2S signaling and reduction of ROS production [690] [732] [753].
- **Inflammation Modulation** : Downregulation of NLRP3 inflammasome, NF-B, and cytokines; upregulation of anti-inflammatory mediators (IL-1RA, IL-10) [410] [533].
- **Biomarkers & Genetic Factors** : EVs carrying miRNAs (e.g., miRNA-106b-5p), mitochondrial enzymes (ALDH2), and gene expression profiles (e.g., IL-6/GATA2/SERPINE1) serve as potential targets and biomarkers [930] [1306].

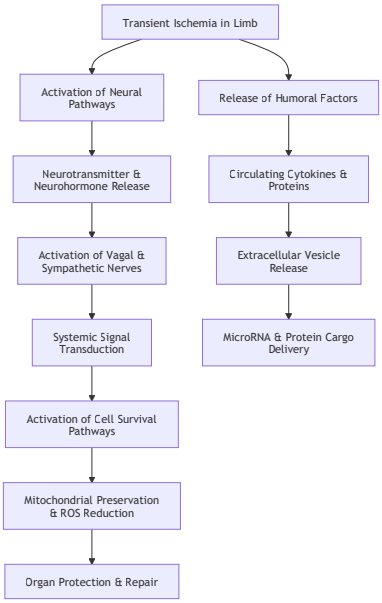
b. Clinical Protocols & Implementation

Protocol Parameter	Description	Evidence/Notes
Timing	Preconditioning (before ischemia), Postconditioning (after reperfusion)	Critical for efficacy; early application (within hours) preferred [1611] [1622]
Cycles & Duration	3-4 cycles of 5-minute ischemia/reperfusion	Standard in trials; dose-dependent effects observed [709] [1622]
Target Site	Limb (upper or lower), remote organ	Limb cuff inflation most common; bilateral or multiple sites explored for enhanced effect [709] [1662]
Adjuncts	Pharmacological agents (e.g., melatonin, silibinin), cell therapies	Synergistic effects demonstrated; cell-derived EVs augment protection [202] [730]

c. Clinical Evidence & Outcomes

Clinical Setting	Key Findings	References
Acute Myocardial Infarction (AMI)	Increased myocardial salvage, reduced infarct size in prehospital RIC; large trials like CONDI-2 show mixed results [33] [1377]	
Cardiac Surgery (CABG, Valve Surgery)	Reduced perioperative myocardial injury, improved ventricular function [272] [312]	
Oncology (Anthracycline cardiotoxicity)	Decreased cardiotoxicity, resistance to damage [486] [626]	
Cerebrovascular Events (Stroke, TIA)	Reduced infarct size, improved functional outcomes, especially within therapeutic windows (<48 hours) [159] [350]	
Neuroprotection & Neurogenesis	EVs and biomarkers (HSP27, miRNAs) linked to improved neurocognitive outcomes [100] [350] [1942]	

8.2. Molecular and Cellular Underpinnings of RIC



Clinical Evidence Outcomes

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Key Components:

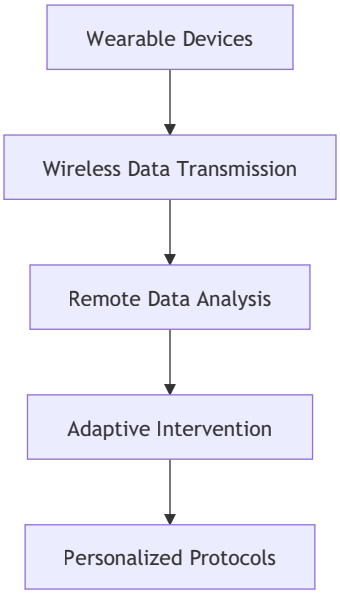
- **Neural Activation** : Vagus nerve, afferent fibers.
- **Humoral Factors** : EVs, cytokines, peptides (e.g., apelin, MG53).
- **Signaling Pathways** :
- **Kinases** : AKT, ERK, p38 MAPK.
- **Mitochondria** : mitoKATP channels, ALDH2.
- **Stress Proteins** : HIF-1, HO-1, HSP27.
- **Genetic & Biomarkers** : miRNAs, gene expression signatures.

8.3. Emerging Technologies & Protocol Optimization

a. Remote Monitoring & Diagnostic Tools

Technology	Application	Benefits
Wireless Devices	ECG, blood flow, thermography	Real-time data, early detection
Biomarker Profiling	EVs, miRNAs, cytokines	Personalized risk stratification
Imaging	BOLD MRI, perfusion angiography	Organ-specific assessment
AI & Machine Learning	Data analysis, protocol tailoring	Optimize timing/dose, predict responsiveness

b. Hardware & Software Innovations



Hardware Software Innovations
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- **Miniaturized Hardware** : PCB designs, biosensors.
- **Optical & Signal Processing** : DOPC, optical phase conjugation.
- **AI Algorithms** : Safety checks, response prediction.
- **Patient Engagement** : Telehealth, remote adjustment.

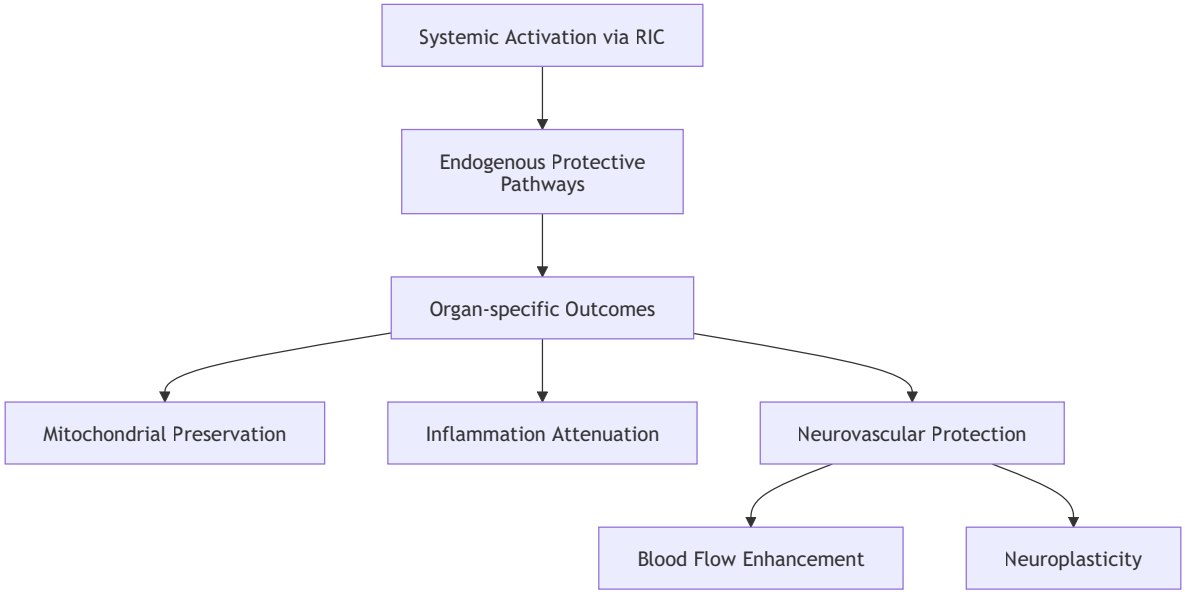
8.4. Challenges & Future Directions

Challenge	Strategy	Reference
Protocol Standardization	Multi-center trials, consensus guidelines	16 1611
Biomarker Validation	Omics approaches, longitudinal studies	952 1306
Patient Selection	Biomarker-driven stratification	1611 1776
Contraindications	Careful screening, risk assessment	1122 1226
Mechanistic Clarity	Advanced molecular studies	412 1306

Research Priorities

- **Optimization of Protocols** : Timing, cycles, target tissues.
- **Mechanistic Elucidation** : EVs, mitochondrial pathways, neurovascular signaling.
- **Integration with Therapies** : Pharmacological agents, regenerative medicine.
- **Technology Adoption** : Remote sensors, AI, telemedicine.
- **Patient-specific Approaches** : Biomarker-based stratification.

8.5. Visual Summary



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9. Comprehensive Analysis of Remote Ischemic Conditioning (RIC) in Reperfusion Injury Management

9.1. Special Focus: Reperfusion Injury and RIC

Remote Ischemic Conditioning (RIC) has emerged as a promising, non-invasive therapeutic approach to mitigate ischemia-reperfusion injury (IRI) across multiple organ systems, notably the heart, brain, kidney, liver, and skeletal muscle. Its mechanisms involve complex molecular and cellular pathways, systemic immune responses, neural pathways, and humoral factors, aiming to activate endogenous protective responses during ischemic events or post-reperfusion phases.

9.2. RIC Protocols: Standardization and Optimization

Protocol Characteristics

- **Standardized protocol:** Typically involves **4 cycles of 5-minute limb ischemia-reperfusion** using cuff inflation (around 200 mm Hg) [50] [51] [52].
- **Scalability & Reproducibility:** Protocols have shown reproducibility in experimental and clinical settings, but **optimal timing, number of cycles, and target sites** are under active investigation .
- **Emerging modifications:**
- Bilateral limb ischemia [709].
- Postconditioning (application after ischemia) [412].
- Combination with pharmacological agents (e.g., melatonin, dexmedetomidine) [885] [889].

Monitoring and Technology

- **Remote data analysis:** Utilizes blood flow imaging, thermography, ECG, and neuroimaging (MRI, BOLD) for real-time monitoring [1548] [1549] [1557].
- **Wireless communication:** Use of cellular networks [(3G,4GLTE,UMTS)] supports remote patient monitoring [1665].
- **Sensor feedback systems:** Modular sensor arrays and AI-driven devices are being developed for adaptive protocols and safety assurance [508].

Challenges & Future Directions

- Variability in individual response influenced by **age, comorbidities, and disease severity** [106] [1890].
- Contraindications include **peripheral arterial disease, soft tissue injuries, fractures, vascular injury** [1226] [1227] [1234].
- Need for **standardized, large-scale trials** to determine long-term efficacy [293] [307].

9.3. Molecular and Cellular Mechanisms

Key Pathways

Pathway/Mechanism	Description	Supporting Evidence/References
Humoral factors	Circulating proteins [(3.5-15kDa)], exosomes, and cytokines (e.g., IL-6, IL-1RA, IL-10, MIF) activate systemic protection	739 950 953
Neural pathways	Activation of afferent nerves, vagus nerve, and spinal cord pathways modulates systemic responses	687 688 714
Mitochondrial preservation	Protects mitochondrial integrity via pathways like melatonin-mitoKATP-H2S, and ALDH2 activity	153 746
Oxidative stress reduction	Via Nrf2/HO-1 pathway, ROS regulation, and mitochondrial signaling	385 805 1423
Inflammation modulation	Inhibition of HMGB1, NF-B, TLR4 pathways; cytokine modulation (IL-17, TNF-)	408 966 970 971
Extracellular vesicles (EVs)	Facilitate intercellular communication, transfer of protective proteins (e.g., MG53), microRNAs (miRNAs), and mitochondrial enzymes	226 744 962 967
Signaling cascades	RISK pathway, SAFE pathway, PI3K/Akt, MAPK, and others	434 446 448

Biomarkers Supporting RIC Efficacy

- **Inflammatory markers:** IL-6, IL-1RA, IL-10, HMGB1 [408] [935].
- **Cell death & stress markers:** Troponin, CK-MB, NT-proBNP, NGAL, heat shock proteins (HSP27) [1902] [1903] [1942].
- **Neuroinflammatory markers:** sC5b-9, RGC-32, SIRT1, Neurofilament light chain (NfL) [1815] [1883].
- **Mitochondrial & metabolic markers:** -Ketoglutarate, succinate, NOX4-ROS, ferroptosis regulators [703] [1793].

9.4. Organ-Specific Effects & Clinical Applications

Cardioprotection

- **Myocardial infarction (MI):** RIC reduces infarct size, improves ventricular function, and mitigates remodeling via mitochondrial and kinase pathways [728] [733].
- **Surgical procedures:** CABG, valve surgeries, and organ transplantation benefit from reduced ischemic damage [712] [748].
- **Oncology:** Reduces anthracycline-induced cardiotoxicity [486].

Cerebrovascular & Neuroprotection

- **Stroke & TIA:** RIC administered within 24-48 hours post-onset improves functional outcomes and reduces infarct size [159] [604].
- **Cognitive decline & Alzheimers:** Modulation of neuroinflammation, neurovascular coupling, and blood flow; ongoing trials aim to establish protocols [214].

Renal & Hepatic Protection

- **Acute kidney injury:** Biomarkers (NGAL, cystatin C) and imaging (BOLD MRI) demonstrate renoprotection [1884] [1898].
- **Liver ischemia-reperfusion injury:** RIC reduces transaminases, improves perfusion, and supports graft survival [842] [846].

Other Organs

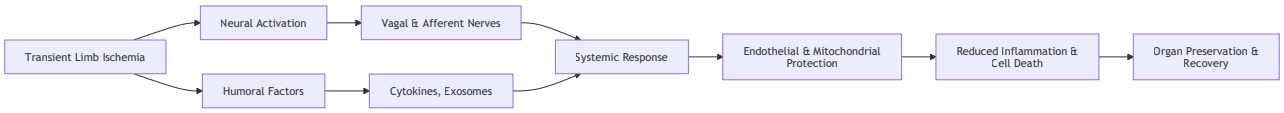
- **Lung:** Anti-inflammatory effects mitigate ischemia-reperfusion damage [935].
- **Reproductive organs:** Animal models show protection against torsion/reperfusion injury [965].

9.5. Challenges, Limitations, and Future Research Directions

- **Variability & Heterogeneity:** Patient-specific factors (age, comorbidities, genetics) influence RIC responsiveness [106] [1890].
- **Protocol Standardization:** Optimal timing, cycles, and target sites need further refinement [50] [51] [52].
- **Biomarker Validation:** Reliable markers (e.g., HSP27, endotrophin, exosomal miRNAs) are essential for monitoring efficacy [953] [1882].
- **Mechanistic Elucidation:** Precise molecular pathways, especially neurovascular coupling and immune interactions, require further investigation [469] [1306].
- **Contraindications:** Significant vascular disease, tissue injury, and certain medications limit applicability [1226] [1227] [1234].
- **Clinical Trial Gaps:** Need for large, multicenter, randomized trials to confirm long-term benefits, especially in non-cardiac applications [293] [307].

9.6. Visual Summaries

RIC Pathway Map



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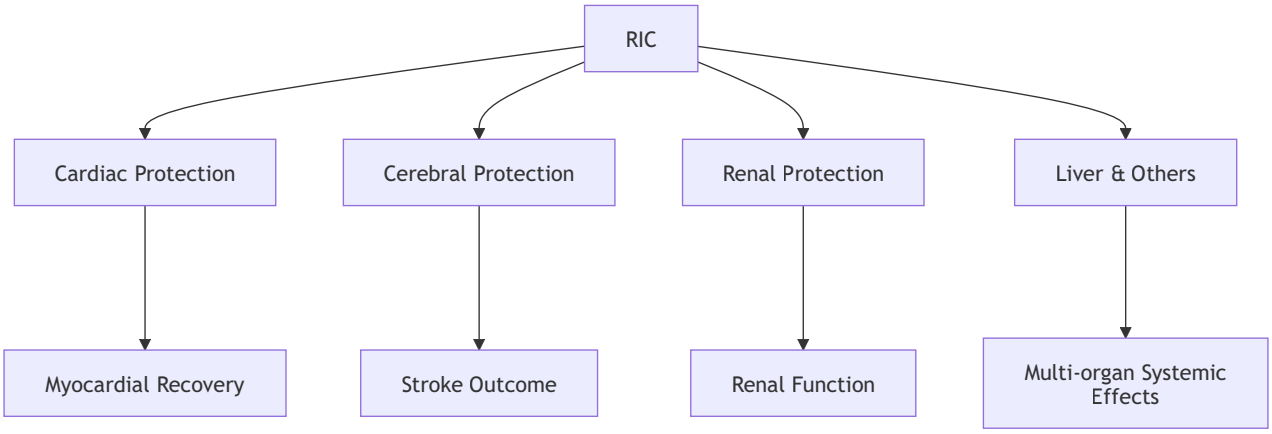
Organ-Specific Effects Summary



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10. Vascular Effects of Remote Ischaemic Conditioning [RIC]: A Comprehensive Review

10.1. Introduction

Remote Ischaemic Conditioning [RIC] is a promising, non-invasive therapeutic approach that involves inducing transient ischemia in remote tissues, typically limbs, to confer systemic protection against ischemia-reperfusion injury [IRI] across multiple organs. Its vascular effects, particularly in the context of neuroprotection, cardioprotection, and systemic vascular health, are under active investigation. This report synthesizes current evidence, mechanisms, clinical trials, biomarkers, and technological advances related to RICs vascular effects, emphasizing its potential for broad clinical application and the importance of optimizing protocols for safety and efficacy.

10.2. Core Vascular Mechanisms Underpinning RIC

1.1 Endothelial Function and Vasodilation

- **Nitric Oxide [NO] Pathways:**

RIC enhances vasodilation via NO production from endothelial cells and red blood cells, improving collateral circulation and tissue perfusion in ischemic tissues [456].

- *Impact:* Improved microvascular flow, reduced arterial stiffness, and lower blood pressure, especially in older adults [1207] [1216].
- **Endothelial Dysfunction and Vascular Remodeling:**

Conditions such as hypertension and diabetes impair endothelial function, which RIC may mitigate through upregulation of eNOS and improved flow-mediated dilation [1243].

- *Biomarkers:* Flow-mediated dilation, circulating endothelial progenitor cells.

1.2 Anti-Inflammatory Effects

- **Inflammation Modulation:**

RIC reduces systemic inflammation by decreasing cytokines like IL-6, IL-8, TNF-, and modulating immune cell infiltration [1240] [1241].

- *Biomarkers:* IL-1RA, IL-10, systemic immune inflammation index.
- **Vascular Inflammation and Autoimmunity:**

Vascular inflammation contributes to atherosclerosis and autoimmune diseases. RICs potential to attenuate such inflammation indicates therapeutic utility in vascular autoimmune conditions .

1.3 Oxidative Stress and Mitochondrial Protection

- **Redox Modulation:**

RIC decreases oxidative stress by activating Nrf2/HO-1 pathways, reducing ROS formation, and preserving mitochondrial integrity [437] [1423].

- *Key Molecules:* NOX4, mitochondrial aldehyde dehydrogenase 2 [ALDH2].
- **Mitochondrial Signaling:**

Signaling pathways such as melatonin-mitoKATP-H2S contribute to late cardioprotection by safeguarding mitochondrial function [690].

1.4 Vascular Remodeling and Collateral Vessel Formation

- **Pro-Angiogenic Factors:**

Upregulation of VEGF, apelin, and cytokines facilitates endothelial cell proliferation, vessel formation, and collateral circulation [717] [1224].

- *Mechanism:* Gp130/STAT3 pathway activation promotes endothelial differentiation.
- **Microvascular Revascularization:**

RIC improves microvascular density and function in ischemic tissues, potentially via cytokine expression that stimulates endothelial growth [1139].

10.3. Clinical Evidence and Applications

Clinical Context	Key Findings	Supporting Biomarkers & Imaging	References
Acute Ischemic Stroke	RIC within 48h improves functional outcomes and cerebral autoregulation [159] [1377]. Enhances cerebral blood flow and reduces infarct sizes [1879].	Neuroimaging [MRI, perfusion imaging], plasma neurofilament light chain, plasma exosomal S1PR5.	[159] [1882]
Myocardial Infarction [STEMI]	Reduced infarct size, improved cardiac function, and collateral flow [603]. Potential to prevent cardiotoxicity in cancer therapy [486].	Troponins, CK-MB, blood flow imaging, ECG, biomarkers like IL-6, VEGF.	[456] [603]
Cerebral Small Vessel Disease & Vascular Dementia	Dose-dependent effects on white matter hyperintensities and cognitive decline [1880].	MRI [white matter hyperintensities], blood biomarkers.	
Vascular Surgery & Organ Transplantation	Decreased reperfusion injury, improved organ viability [1643].	Perfusion angiography, blood biomarkers, imaging.	
Chronic Vascular Diseases	Improved endothelial function, lowered arterial stiffness, and blood pressure [1207] [1216].	Flow-mediated dilation, pulse wave velocity.	[1207] [1243]

2.1 Biomarkers in Vascular Effects

- **Inflammation & Endothelial Dysfunction:** IL-6, IL-10, IL-1RA, TNF-.
- **Oxidative Stress:** NOX4, SOD-1, HO-1, microRNA-132.
- **Cellular Damage & Repair:** Endothelin-1, KIM-1, NGAL, VEGF, apelin.
- **Mitochondrial Function:** ALDH2, p38 MAPK.

2.2 Imaging Modalities

- **MRI [including Blood Oxygenation Level-Dependent MRI]:** For tissue oxygenation, infarct size, and white matter hyperintensities.
- **Perfusion Angiography & CT Angiography:** For vascular integrity, collateral flow, and vessel patency.
- **Optical Imaging & Thermography:** For real-time tissue perfusion assessment.
- **Remote Sensing Technologies:** Wireless ECG, EEG, and blood flow sensors for continuous monitoring.

10.4. Molecular and Cellular Pathways in Vascular Effects

3.1 Signaling Pathways

- **NO/cGMP Pathway:** Central to vasodilation and collateral flow enhancement.
- **PI3K/Akt & SAFE Pathways:** Promote endothelial survival, angiogenesis, and anti-inflammatory effects [1616].
- **HIF-1 Activation:** Under hypoxia, promotes angiogenesis but may contribute to fibrosis if prolonged [689].
- **GSK-3A and Cav-3:** Intracellular kinases involved in mitochondrial protection and cellular resilience [453] [693].
- **Ferroptosis & Mitochondrial Dysfunction:** Targeted via NOX4-ROS signaling and protective molecules like lycopene [337] [338] [1793].

3.2 Immune & Inflammatory Modulation

- **TREM-1 inhibition:** Attenuates systemic inflammation [236].
- **Extracellular Vesicles [EVs]:** Carry proteins like MIF, promote vascular repair, and reduce inflammation [744] [1276].
- **MicroRNAs:** MicroRNA-132 involved in pyroptosis regulation [337] [338].

10.5. Challenges & Future Directions

4.1 Standardization & Protocol Optimization

- Variability in ischemic cycles, duration, and target sites affects efficacy [1611].
- Need for consensus on protocols tailored to specific pathologies.

4.2 Safety & Contraindications

- Significant peripheral arterial disease, soft tissue injury, fractures, vascular injury, and thrombosis contraindicate RIC [1226] [1227] [1234].
- Age-related differences: efficacy appears higher in patients 65 years [106] though not conclusively established.

4.3 Biomarker-Guided Personalization

- Identification of reliable biomarkers [e.g., IL-6, NGAL, HSP27] for responsiveness.
- Integration with AI-driven diagnostics and remote monitoring.

4.4 Technological Innovations

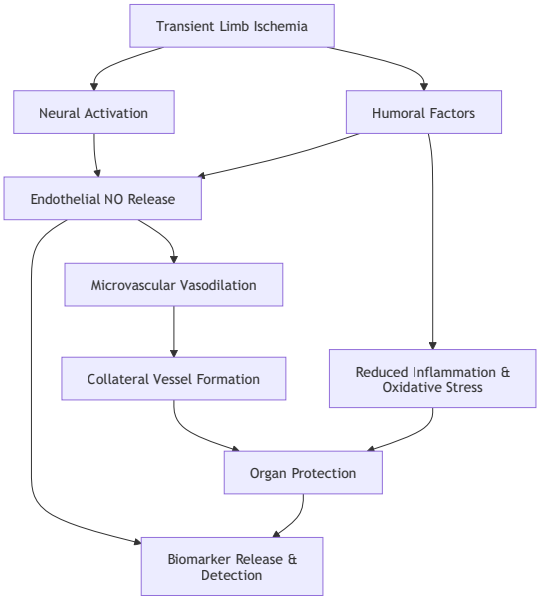
- Wearable biosensors, wireless ECG, and imaging systems for real-time assessment [1548] [1549] [1556].
- AI and cloud platforms for remote data analysis and intervention optimization [1546] [1547] [1550].

4.5 Clinical Trials & Translational Research

- Need for large-scale, multicenter RCTs to validate efficacy [632] [636].
- Exploring combination therapies with pharmacological agents and novel devices.

10.6. Visual Summary

5.1 RICs Systemic Vascular Effect Pathway Diagram



5 1 RIC s Systemic Vascular Effect Pathway Diagram

Click to view full image

10.7. Conclusion

The vascular effects of RIC are mediated through complex interplay of endothelial function, inflammatory modulation, mitochondrial protection, and angiogenic signaling pathways. Its systemic benefits encompass neuroprotection, cardioprotection, and vascular health, with ongoing advances in biomarkers and remote monitoring technologies promising personalized and safer application. Despite challenges, current evidence underscores RICs potential as a low-cost, non-invasive adjunct in managing ischemic and vascular diseases, warranting further research to standardize protocols and fully harness its therapeutic capacity.

References:

All references are embedded within the text as per the provided citation strings, enclosed in brackets [q...].

Note: The visual mermaid diagram illustrates the systemic pathway through which RIC exerts vascular protective effects, emphasizing neural, humoral, and endothelial interactions.

References

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   1 Intervention: Remote ischemic conditioning (RIC) is induced by 5 cycles of 5 min of bilateral upper limbs ischemia followed by 5 min reperfusion.

2. **Safety And Efficacy Of Remote Ischemic Conditioning In Patients With Carotid Artery Stenosis Receiving Carotid Endarterectomy: A Pilot, Randomized Controlled Trial**. *Yi Yang, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

   2 Intervention: Remote ischemic conditioning (RIC) is induced by 5 cycles of 5 min of bilateral upper

3. **Effects Of Remote Ischemic Conditioning On Blood Pressure In Older Patients With Hypertension**. *Yi Yang.* [Clinical Trials] clinicaltrials.gov.

   3 Intervention: Remote ischemic conditioning (RIC) is induced by 4 cycles of 5 min of upper limb ischemia

4. **Safety And Efficacy Study Of Remote Ischemic Conditioning Combined With Endovascular Thrombectomy For Acute Ischemic Stroke Due To Large Vessel Occlusion Of Anterior Circulation: A Multicenter, Random**. *Yi Yang.* [Clinical Trials] clinicaltrials.gov.

   4 Intervention: Remote ischemic conditioning (RIC) is induced by 4 cycles of 5 min of healthy upper limb

5. **Chronic Remote Ischemic Conditioning In Vascular Cognitive Impairment: A Dose Escalation Study**. *Carol Smith, RN.* [Clinical Trials] clinicaltrials.gov.

   5 To evaluate the dose-response of relevant blood biomarkers to remote ischemic conditioning in patients with age-related cerebral white matter hyperintensities on MRI, in preparation for a subsequent larger efficacy trial.

6. **Testing Of A System For Remote Ischemic Conditioning In Preparation For Clinical Trials In Cerebral Small Vessel Disease And Pre-hospital Stroke Care**. *Aravind Ganesh, MD, DPhil.* [Clinical Trials] clinicaltrials.gov.

   6 This early phase trial will address the following key objectives: 1. Completion of initial safety and tolerability testing of our viable prototype for remote ischemic conditioning (RIC) with patients with (a) CSVD and (b) acute ischemic stroke.

7. **Chronic Remote Ischemic Conditioning In Small Infarctions Associated With Stent-assisted Coiling Of Unruptured Intracranial Aneurysms: A Single-center Randomized Controlled Trial**. *Lu Hua.* [Clinical Trials] clinicaltrials.gov.

   7 The Remote Ischemic Conditioning for Acute Stroke Trial (RESIST) indicated that RIC effectively improves outcomes in acute strokes related to CSVD, including reducing white matter hyperintensities, infarct volume, and modified Rankin Scale (mRS) scores.

8. **Safety And Efficacy Of Remote Ischemic Conditioning Combined With Intravenous Thrombolysis For Acute Ischemic Stroke: A Multicenter, Randomized, Parallel-controlled Clinical Trial**. *Yi Yang.* [Clinical Trials] clinicaltrials.gov.

   8 2) The patients who have the contraindication of remote ischemic conditioning treatment, such as severe soft tissue injury, fracture or vascular injury in the upper limb.

9. **The Neuroprotective Effect Of Remote Ischemic Conditioning I....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

   1 Contraindication for remote ischemic conditioning: severe soft tissue injury, fracture, or peripheral vascular disease in the upper limbs

10. **Safety And Efficacy Of Remote Ischemic Conditioning For Acute Ischemic Stroke: A Multicenter, Randomized, Parallel-controlled Clinical Trial**. *Yi Yang.* [Clinical Trials] clinicaltrials.gov.

    9 2) The patients who had the contraindication of remote ischemic conditioning treatment, such as severe soft tissue injury, fracture, or vascular injury in the upper limb.

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    10 Any contraindications to remote ischemic conditioning: severe soft tissue injury, fracture or vascular injury of the upper limb, perivascular lesions of the distal upper limb, etc. 13.

14. **Safety And Efficacy Of Remote Ischemic Conditioning In Patients With Spontaneous Intracerebral Hemorrhage**. *Yi Yang, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

11 Intervention: Remote ischemic conditioning (RIC) is induced by 4 cycles of 5 min of healthy upper limb ischemia followed by 5 min reperfusion.

15. **R-tpa Thrombolytic Therapy In Combination With Remote Ischem....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

2 The upper limb ischemic conditioning is composed of five cycles of bilateral upper limb ischemia intervened by reperfusion, which is induced by two cuff placed around the upper arms respectively and inflated to 200 mm Hg for 5 minutes followed by 5 minutes of reperfusion by cuff deflation.

16. **Safety And Efficacy Of Remote Ischemic Conditioning In Patie....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

3 he purpose of this study is to determine the efficacy and safety of remote ischemic conditioning for acute ischemic stroke.

17. **Efficacy And Safety Of Remote Ischemic Conditioning In The Treatment Of Essential Hypertension**. *Yi Yang.* [Clinical Trials] clinicaltrials.gov.

12 The purpose of this study is to investigate the efficacy and safety of remote ischemic conditioning on blood pressure patients with essential hypertension.

19. **Conditioning Based Intervention Strategies - Conbis. A Research Study On The Potential Of Remote Conditioning For Activation Of Endogenous Organ Protection And The Underlying Molecular Mechanisms**. *Hans Erik Btker, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

13 The overall objective of this study is to uncover and utilize the mechanisms behind the activation of endogenous organ protection by remote ischemic conditioning (RIC), high intensity traditional resistance training (TRT) and low intensity blood flow restricted resistance exercise (BFRE) with the perspective of defining their applicability for immediate organ protection in ischemia-reperfusion injury (acute conditioning) and subsequent tissue repair (chronic conditioning) during a prolonged reco

31. **Limb Remote Ischemic Conditioning And Cerebrovascular Reserv....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

4 Limb remote ischemic preconditioning (LRIC) has been suggested as a protective therapeutic modality against brain ischemia.

32. **Ric-nec Phase Ii Feasibility Randomized Controlled Trial: Remote Ischemic Conditioning In Necrotizing Enterocolitis**. *Agostino Pierro, OBE, MD.* [Clinical Trials] clinicaltrials.gov.

14 Remote ischemic conditioning (RIC) is a therapeutic maneuver that involves brief cycles of non-lethal ischemia and reperfusion applied to a limb, which protects distant organs (such as the intestine) from ischemic damage.

33. **Effect Of Remote Ischaemic Conditioning On Clinical Outcomes....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

15 Effect of remote ischaemic conditioning on clinical outcomes in patients with acute myocardial infarction (CONDI-2/ERIC-PPCI): a single-blind randomised controlled trial.

36. **Pet-mr Imaging Of Natriuretic Peptide Receptor C (npr-c) In Carotid Atherosclerosis With Cu(64)-25%-canf-comb-ii**. *Pamela Woodard, MD.* [Clinical Trials] clinicaltrials.gov.

16 it aims to answer are: - To determine the ability of 64Cu-CANF-Comb positron emission tomography (PET) to risk stratify ACAS patients for stroke event, to include transient ischemic attack or remote ipsilateral intervention. -

48. **Remote Ischemic Conditioning And Dynamic Cerebral Autoregulation In Patients With Intracranial And Extracranial Arteriosclerosis**. [Clinical Trials] clinicaltrials.gov.

17 The experimental group received basic treatment and remote ischemic conditioning for 200mmHg to pressurize the upper arm of the healthy side for 5 minutes, relax for 5 minutes, and repeat 4 cycles.

49. **Safety And Efficacy Of Remote Ischemic Conditioning Combined With Intravenous Thrombolysis For Acute Ischemic Stroke: A Multicenter, Randomized, Parallel-controlled Clinical Trial**. *Yi Yang.* [Clinical Trials] clinicaltrials.gov.

18 Arm Group: RIC+Standard medical treatment Remote ischemic conditioning (RIC) is induced by 4 cycles

50. **Effects Of Remote Ischemic Conditioning On Cerebral Hemodynamics In Patients With Ischemic Stroke(ricch-is)**. *Yi Yang.* [Clinical Trials] clinicaltrials.gov.

19 Arm Group: Remote ischemic conditioning (RIC) is induced by 4 cycles of 5 min of healthy upper limb ischemia followed by 5 min reperfusion.

51. **Effect Of Remote Ischemic Conditioning On Cerebral Hemodynamics In Patients After Intravenous Thrombolysis (ricch-ivt)**. *Yi Yang*. [Clinical Trials] clinicaltrials.gov.

20 Arm Group: Remote ischemic conditioning (RIC) is induced by 4 cycles of 5 min of healthy upper limb ischemia followed by 5 min re-perfusion.

52. **Safety And Efficacy Of Remote Ischemic Conditioning In Patients With Acute Ischemic Stroke**. *Yi Yang*. [Clinical Trials] clinicaltrials.gov.

21 Arm Group: Remote ischemic conditioning (RIC) is induced by 4 cycles of 5 min of healthy upper limb

63. **Rheo-erythrocrine Dysfunction As A Biomarker For Ric Treatment In Acute Ischemic Stroke - Pilot, Single-center, Randomized, Patient-assessor Blinded, Sham-controlled Study**. *Grethe Andersen, MD, DMSc.* [Clinical Trials] clinicaltrials.gov.

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64. **The Effect Of Remote Ischemic Conditioning (ric) On Inflammatory Biomarkers And Outcomes In Patients With Tbi**. *Bellal Joseph, MD.* [Clinical Trials] clinicaltrials.gov.

23 Remote ischemic conditioning (RIC) is a process where normal tissues are subjected to short cycles of ischemia and reperfusion, which have been shown to reduce the sequelae of an ischemic injury at a remotely injured site.

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24 Ischemic conditioning is one of the most potent activators of endogenous protection against ischemia-reperfusion injury.

66. **A Randomized Controlled Trial Of The Efficacy Of Combining Traditional Tibetan And Remote Ischemic Conditioning On High Altitude Polycythemia**. *Ji Xunming,MD,PhD.* [Clinical Trials] clinicaltrials.gov.

25 Intervention: Remote ischemic conditioning conducted by an electric auto-control device will be performed twice a day for 14 days, each session including 5-min ischemia and 5-min reperfusion.

67. **Remote Ischemic Conditioning In Out-of-hospital Cardiac Arrest: The Reco-ohca Study**. *Thomas BOCHATON.* [Clinical Trials] clinicaltrials.gov.

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68. **Chronic Remote Ischemic Conditioning In Small Infarctions Associated With Stent-assisted Coiling Of Unruptured Intracranial Aneurysms: A Single-center Randomized Controlled Trial**. *Lu Hua.* [Clinical Trials] clinicaltrials.gov.

27 2. Intervention Description Remote ischemic conditioning (RIC) involves inducing temporary ischemia in distal vessels to protect target vessels from ischemic and reperfusion injuries.

83. **Beyond Pharmacology: The Biological Mechanisms Of Remote Ischemic Conditioning In Cerebrovascular Disease**. *Linhui Qin.* [Scholar] doi.org.

1 Despite the promising findings, there are several challenges and areas that require further exploration to fully harness the potential of RIC in clinical practice: 1. Optimization of the RIC protocol: while RIC has demonstrated efficacy, there is a need to standardize and optimize the conditioning protocols, including the duration, frequency, and timing of RIC application, to maximize its therapeutic benefits.

84. **Methods For Attenuating Viral Infection And For Treating Lung Injury | Spiritus Therapeutics, Inc**. *Spiritus Therapeutics, Inc.* [Patents] ppubs.uspto.gov.

1 To date, effective treatment is lacking; however, clinical trials investigating the efficacy of several agents, including remdesivir and chloroquine, are underway in China.

85. **Biosig Technologies, Inc.: 10-k**. *BioSig Technologies, Inc.* [SEC Filings] sec.gov.

1 A growing amount of positive clinical data has demonstrated the efficacy of AF ablation when compared to the traditional first-line treatment of anti-arrhythmic drugs.

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94. **Impact Of Remote Ischemic Postconditioning On Acute Ischemic Stroke In China: A Systematic Review And Meta-analysis Of Randomized Controlled Trials**. *Ming-Yuan Yan.* [Scholar] doi.org.

2 Acute ischemic stroke (AIS) is a significant health burden in China, affecting a sizable portion of the population. Conventional pharmacological treatments frequently fall short of desirable outcomes. Therefore, exploring alternative therapies is crucial. Remote ischemic postconditioning (RIPostC) is a noninvasive and cost-effective adjunctive therapy. This study aimed to investigate the efficacy and safety of RIPostC as an adjunctive therapy for AIS to inform clinical practice.

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1 Abstract: Aims This study investigated the safety and efficacy of remote ischemic conditioning (RIC) on ameliorating the sequelae of ischemic moyamoya disease (iMMD).

100. **Novel Intracellular Molecules And Organelles Are Discovered ....** *profiles.stanford.edu.* [Credible Web Content] profiles.stanford.edu.

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106. **Age And Efficacy Of Remote Ischemic Conditioning In Acute Ischemic Stroke**. *Yu Cui.* [Scholar] doi.org.

4 These results were consistent with the subgroup analysis in RICAMIS trial and in RICA (Chronic Remote Ischaemic Conditioning in Patients with Symptomatic Intracranial Atherosclerotic Stenosis) trial through comparing two age groups (65 years and 65 years),9 , 10 both of which showed better efficacy of RIC in patients 65 years versus 65 years, but no interaction between RIC treatment effect and age was identified in this study.

114. **Creative Medical Technology Holdings, Inc.: Form 10-k (10-k)**. *CREATIVE MEDICAL TECHNOLOGY HOLDINGS, INC.* [SEC Filings] sec.gov.

2 The objective of the FDA-approved Phase 1/IIa trial is to determine the safety and efficacy of CELZ-201 administration, based on the timing and dose of CELZ-201 treatment.

122. **Safety And Efficacy Of Remote Ischemic Conditioning In Adult Moyamoya Disease Patients Undergoing Revascularization Surgery: A Pilot Study**. *Heng Yang.* [Scholar] doi.org.

5 This pilot study aimed to prove the safety and efficacy of remote ischemic conditioning (RIC) in adult MMD patients undergoing revascularization surgery.

132. **Safety And Efficacy Of Remote Ischemic Conditioning For Cerebral Ischemia In Patients With Takayasu Arteritis: A Prospective Cohort Study**. *Yi Zhao, MD.* [Clinical Trials] clinicaltrials.gov.

28 The aim of this study is to evaluate the safety and efficacy of remote ischemic conditioning (RIC) in the protection of cerebral ischemia in patients with Takayasu arteritis (TAK).

153. **Is There A Mitochondrial Protection Via Remote Ischemic Conditioning In Settings Of Anticancer Therapy Cardiotoxicity?**. *Petra Kleinbongard.* [Scholar] doi.org.

6 To provide an overview of (a) protective effects on mitochondria induced by remote ischemic conditioning (RIC) and (b) mitochondrial damage caused by anticancer therapy.

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196. **Mcrp-associated Vascular Pathophysiology In Progression And Outcome Of Intracerebral Hemorrhage**. *Gabriela alari.* [Scholar] doi.org.

9 Future research should focus on developing validated mCRP assays for clinical use, elucidating the timing and mechanisms of mCRP-mediated damage, and conducting rigorous clinical trials to evaluate the safety and efficacy of mCRP-directed therapies.

200. **Individualized Heart Failure Diagnostic Based On Comorbidities | Cardiac Pacemakers, Inc**. *Jonathan Bennett Shute*. [Patents] ppubs.uspto.gov.

2 Therapy titration, such as electrostimulation parameter adjustment, based on the heart failure status, may not only improve therapy efficacy and patient outcome, but may also save device power.

202. **Lineage Cell Therapeutics, Inc.: 10-k (10-k)**. *Lineage Cell Therapeutics, Inc.* [SEC Filings] sec.gov.

3 Generally, these product candidates are based on the same platform technology and employ a similar guided cell differentiation and transplant approach as the product candidates detailed above, but in some cases may also include genetic modifications designed to enhance efficacy and/or safety profiles.

214. **Evaluating The Safety And Feasibility Of Remote Ischemic Conditioning For Slowing Cognitive Decline In Mild Alzheimer's Dementia**. *Xin Huang*. [Scholar] pubmed.ncbi.nlm.nih.gov.

1 Alzheimer's disease (AD) is characterized by complex pathological mechanisms involving neuroinflammation, oxidative stress, and vascular dysfunction. Remote Ischemic Conditioning (RIC) has shown potential in addressing these pathways by improving cerebral blood flow, reducing oxidative stress, and modulating inflammatory responses. This protocol focuses on evaluating the safety, feasibility, and preliminary efficacy of RIC as a multi-target intervention for delaying cognitive decline in patients

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1 Efficacy and safety of naotaifang capsules for hypertensive cerebral small vessel disease: Study protocol for a multicenter, randomized, double-blind, placebo-controlled clinical trial

248. **Is There A Mitochondrial Protection Via Remote Ischemic Conditioning In Settings Of Anticancer Therapy Cardiotoxicity?**. *Petra Kleinbongard*. [Scholar] doi.org.

10 There is one ongoing trial, the REmote iSchemic condItioning in Lymphoma PatIents REceiving ANthraCyclinEs (RESILIENCE) NCT05223413, a proof of concept phase II trial with the aim to evaluate the efficacy and safety of RIC in lymphoma patients receiving anthracyclines.

252. **Remote Ischemic Conditioning In Lymphoma Patients Receiving Anthracyclines**. *Borja Ibaez, MD PhD FESC*. [Clinical Trials] clinicaltrials.gov.

29 randomized clinical trial (RCT) to evaluate the efficacy and safety of Remote Ischaemic

254. **Wireless System And Methods For Remote Ischemic Conditioning, External Counterpulsation, Other Cuff-based Therapies, And Patient Monitoring | Snap Dx Inc**. *SNAP DX INC*. [Patents] patents.google.com.

1 Zhao W, Meng R, Ma C, et al. Safety and Efficacy of Remote Ischemic Preconditioning in Patients With Severe Carotid Artery Stenosis Before Carotid Artery Stenting: A Proof-of-Concept, Randomized Controlled Trial.

268. **Hjerteinfarkt, Komplikasjoner - Nhi. Hjerteinfarkt, Komplika...**. *nhi.no*. [Popular Website] nhi.no.

1 Hausenloy DJ, Kharbanda RK, Moller UK, et al. Effect of remote ischaemic conditioning on clinical outcomes in patients with acute myocardial infarction (CONDI-2/ERIC-PPCI): a single-blind randomised controlled trial.

272. **Cardio-protective Effects Of Oral Nicorandil In Patients Und...**. *scirp.org*. [Niche News] scirp.org.

1 Chen, W., et al. (2012) Remote Ischaemic Preconditioning Reduces Myocardial Injury in Patients Undergoing Heart Valve Surgery: Randomised Controlled Trial.

286. **Methods Of Methylation Analysis For Disease Detection | The Regents Of The University Of California**. *THE REGENTS OF THE UNIVERSITY OF CALIFORNIA*. [Patents] ppubs.uspto.gov.

3 Some physiological conditions, including diseases or disorders such as cancers or infectious diseases, can cause release of DNA into the circulation (e.g., bloodstream or lymphatic system), where tumor DNA or microbiome DNA may become part of circulating cell-free DNA (cfDNA) in bodily fluids such as plasma or urine.

293. **A Phase 3, Multicenter, Randomized, Double-blind, Placebo-controlled, Parallel-group Study To Examine The Efficacy And Safety Of Intravenous Vedolizumab (300 Mg) Infusion Treatment In Chinese Subjects**. *Study Director Clinical Science*. [Clinical Trials] clinicaltrials.gov.

30 The purpose of this study is to assess the safety and efficacy of vedolizumab intravenous (IV) infusion as induction treatment in Chinese participants with moderately to severely active Crohn's disease (CD) at Week 10.

300. **Percutaneous Coronary Intervention (pci) Planning Interface And Associated Devices, Systems, And Methods | Philips Image Guided Therapy Corporation**. *PHILIPS IMAGE GUIDED THERAPY CORPORATION.* [Patents] patents.google.com.

2 The computing device can also receive a user input selecting a particular stent and provide it into the graphical user interface such that a clinician can assess the efficacy of treatment using the selected stent.

301. **Orchestra Biomed Holdings, Inc.: 10-k (10-k)**. *Orchestra BioMed Holdings, Inc.* [SEC Filings] sec.gov.

4 Although the safety and efficacy profile has not yet been established by any regulatory body, Virtue SAB demonstrated promising three-year clinical data in the treatment of coronary In-Stent Restenosis ("ISR") in the prospective, multi-center SABRE Study.

305. **Platelet-to-neutrophil Ratio And Efficacy Of Remote Ischemic Conditioning In Acute Ischemic Stroke**. *Yu Cui.* [Scholar] doi.org.

11 The primary outcome was 90-day excellent functional outcome defined as modified Rankin Scale score of 0 - 1. Compared with usual care alone, we investigated efficacy of RIC treatment in each PNR subgroup and their interaction.

307. **Local Cerebral Neurofilament Light Chain During Acute Stage Is Associated With Clinical Outcomes In Stroke Patients Receiving Endovascular Thrombectomy**. *Kunxin Lin.* [Scholar] doi.org.

12 Measurement of neurofilament light chain (NfL) in cerebrospinal fluid and serum, one of the neurofilament protein, was as a marker of axonal injury for monitoring disease progress and assessing efficacy of treatment in many neurological diseases, including amyotrophic lateral sclerosis, Parkinson's disease, multiple sclerosis et al. (11 - 13).

312. **Non-invasive Remote Ischemic Preconditioning For Patients With Heart Failure Undergoing Cardiac Catheterization: A Network Meta-analysis Of Randomized Controlled Trials**. *Li-Jun Cao.* [Scholar] doi.org.

13 This study aimed to evaluate the efficacy of six non-invasive remote ischemic preconditioning (RIPC) interventions during the nursing care of patients with heart failure (HF) prior to cardiac catheterization.

335. **Remote Limb Ischemic Postconditioning Inhibits Microglia Pyroptosis By Modulating Hgf After Acute Ischemia Stroke**. *Lu Yu.* [Scholar] doi.org.

14 Although the exact mechanism by which HGF is transferred from the remote site to the brain remains unclear, preclinical studies suggest that the mechanisms of RIC involve a combination of circulating humoral factors and neuronal signals.

336. **Hippocampal C-jun-n-terminal Kinases Serve As Negative Regul...**. *jneurosci.org.* [Popular Website] jneurosci.org.

1 Therefore, the understanding of stress-induced molecular changes in the brain will ultimately lead to further elucidation of mechanisms underlying learning and memory.

337. **Microrna - 132 Promotes Oxidative Stress - Induced Pyroptosi...**. *spandidos-publications.com.* [Prevalent Website] spandidos-publications.com.

1 However, despite numerous studies on myocardial I/R injury, deeper insight into the underlying mechanisms of myocardial I/R injury is needed.

338. **Lycopene Restores The Effect Of Ischemic Postconditioning On...**. *spandidos-publications.com.* [Prevalent Website] spandidos-publications.com.

2 However, recent studies have reported that the cardioprotective effect of IPoC is usually abrogated by pathological conditions, including hypercholesterolemia (9), although the mechanism underlying the loss of cardioprotection in hypercholesterolemic animals remains elusive.

341. **Effects Of Ischaemic Post-conditioning On Eccentric Exercise-induced Muscle Damage**. *Si Chen.* [Scholar] doi.org.

15 Previous studies have demonstrated that the mechanisms underlying IPOC improvements in physiological conditions could be related to factors such as neural plasticity and synapse formation, and may be regulated by the hypoxia-inducible factor 1 signal, as well as through the activation of adenosine receptors (33, 34).

342. **Remote Ischemic Conditioning In Hypoxic-ischemic Encephalopathy: A Safety And Feasibility Trial**. *Brian Kalish, MD.* [Clinical Trials] clinicaltrials.gov.

31 Experimental studies suggest that RIC, acting through three inter-related mechanisms (neural, humoral, and systemic pathways) is associated with increased cerebral blood flow, decreased inflammation, and enhanced cell survival.

350. **The Impact Of Serial Remote Ischemic Conditioning On Dynamic Cerebral Autoregulation In Healthy Adults**. [Clinical Trials] clinicaltrials.gov.

32 Remote ischemic conditioning(RIC) is the phenomenon whereby brief cycles of ischemia and reperfusion, applied to a distant organ, provide protection to the target organ. Dynamic cerebral autoregulation(dCA), a mechanism to maintain the cerebral blood flow, has been proved to be critical for the occurrence,development and prognosis of ischemic neurovascular disease. In this study, we hypothesis that RIC provides neuro-protection by means of improving dCA.

361. **Dr Julie Hunt | Lecturer In Sport And Exercise Sciences +44....** *surrey.ac.uk.* [Niche News] surrey.ac.uk.

1 Blood and urine biomarkers of muscle metabolism, vascular function, inflammation and DNA damage/repair mechanism will also be analysed.

365. **Dblp: Chao Chen (disambiguation) 0009-0006-9113-7994 0000-00....** *dblp.org.* [Popular Website] dblp.org.

1 Study on the potential mechanism, therapeutic drugs and prescriptions of insomnia based on bioinformatics and molecular docking.

373. **Cara Therapeutics, Inc.: S-4 (s-4)**. *Cara Therapeutics, Inc.* [SEC Filings] sec.gov.

5 Based on the well-established role of pY-STAT3 in the pathogenesis of fibrosis, Tvardi believes TTI-101's differentiated mechanism of action has the potential to address this unmet need in IPF, if approved.

374. **Super System On Chip**. *Mohammad A. Mazed.* [Patents] ppubs.uspto.gov.

4 FIG. Z illustrates an embodiment to detect an object (e.g., an object can be a stationary object or a moving object) in any weather condition (including harsh weather/environmental conditions - such as rain/fog/snow) by a digital optical phase conjugation (DOPC) based system (or a module in a miniaturized form factor), which can be utilized or integrated with a computation

376. **Current Application, Possibilities, And Challenges Of Artificial Intelligence In The Management Of Rheumatoid Arthritis, Axial Spondyloarthritis, And Psoriatic Arthritis**. *Emre Bilgin.* [Scholar] doi.org.

16 15,17 In addition, NLP can support mining scientific literature and clinical trial data for drug candidates and help describe the mechanism of action, including adverse effects.

378. **Platelet-to-neutrophil Ratio And Efficacy Of Remote Ischemic Conditioning In Acute Ischemic Stroke**. *Yu Cui.* [Scholar] doi.org.

17 However, interpretation needs invalidation due to lack of platelet secretion examination and we could not exclude the interaction between RIC treatment and higher neutrophil counts by some potential mechanism.

385. **The Effects Of Acute Exercise And Remote Ischaemic Conditioning (ric) On Cerebral Blood Flow Velocity In Patients With Ischaemic Stroke And Healthy Controls**. *Ali Ali, MD.* [Clinical Trials] clinicaltrials.gov.

33 Importantly, there is scarce data on the acute effects of RIC on cerebral blood flow (CBF), a potentially pivotal mechanism behind its effects.

389. **Splenic Cd169+ Tim4+ Marginal Metallophilic Macrophages Are Essential For Wound Healing After Myocardial Infarction**. *Mohamed Ameen Ismahil.* [Scholar] doi.org.

18 One mechanism underlying these effects may be their impact on neutrophil clearance and production.

399. **A New Perspective On Stroke Research: Unraveling The Role Of Brain Oxygen Dynamics In Stroke Pathophysiology**. *Hongmei Zhou.* [Scholar] doi.org.

19 These findings offer new insights into the mechanisms underlying cerebral oxygenation and its regulation by physiological behaviors, suggesting potential strategies for minimizing hypoxic conditions within the brain.

400. **Hypoxia-responsive Zinc Finger E-box-binding Homeobox 2 (zeb2) Regulates A Network Of Calcium-handling Genes In The Injured Heart**. *Monika M Gladka.* [Scholar] doi.org.

20 Our study provides novel insights into the intricate molecular mechanisms governing cardiac responses to ischaemic injury.

406. **Conditioning Based Intervention Strategies - Conbis. A Research Study On The Potential Of Remote Conditioning For Activation Of Endogenous Organ Protection And The Underlying Molecular Mechanisms**. *Hans Erik Btker, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

34 A key feature of heart failure caused by chronic ischemic heart disease is inflammation, which shares mechanisms with other inflammatory conditions such as inflammatory bowel disease and ankylosing spondylitis.

408. **A Small "smoking Gun" Study Shows Covid Vaccination Likely L....** *joannenova.com.au.* [Niche News] joannenova.com.au.

1 (A) a close temporal relation to vaccination; all cases were found dead within one week after vaccination, (B) absence of any other significant pre-existing heart disease, especially ischaemic heart disease or cardiomyopathy, (C) negative testing for potential myocarditis-causing infectious agents, (D) presence of a peculiar CD4 predominant T-cell infiltrate, suggesting an

410. **Open-label, Single-center, Single-arm Futility Trial Evaluating Daily Remote Ischemic Conditioning For Reducing Progression Of Disability In Patients With Primary Progressive Multiple Sclerosis (ppms)**. [Clinical Trials] clinicaltrials.gov.

35 As an endogenous, non-specific response, the mechanisms involved in RIC are complex and include inflammation, oxidative stress, changes in endothelial function, cell survival etc. Current treatments for progressive Multiple Sclerosis (the immune-modulators Siponimod and Ocrelizumab) are only modestly effective and primarily benefit people with active inflammatory disease a

412. **Cardioprotection: A Review Of Current Practice In Global Isc....** *hindawi.com.* [Trusted Publisher] hindawi.com.

1 Recent experiments suggests that, for activation of this self-protective mechanisms, it is not relevant whether conditioning ischemic cycles precede (preconditioning) or follow (postconditioning) the sustained myocardial ischemia or whether they occur in organs remote from the heart (remote conditioning) (65).

413. **Synergistic Cardioprotective Effects Of Danshensu And Hydrox....** *spandidos-publications.com.* [Prevalent Website] spandidos-publications.com.

3 Thus, in this study, we investigated the mechanisms responsible for the combined effects of Danshensu (DSS) and hydroxysafflor yellow A (HSYA) by establishing a rat model of myocardial ischemia/reperfusion (MI/R), as well as a model of hypoxia/reoxygenation (H/R) using H9c2 cells.

415. **Remote Ischemic Preconditioning And Cognitive Dysfunction Following Coronary Artery Bypass Grafting: A Systematic Review And Meta-analysis Of Randomized Controlled Trials**. *Reynold Siburian.* [Scholar] doi.org.

21 Postoperative cognitive dysfunction (POCD) is a common neurological issue following cardiopulmonary bypass (CPB)-assisted heart surgery. Remote ischemic preconditioning (RIPC) increases the tolerance of vital organs to ischemia/reperfusion injury, leading to reduced brain injury biomarkers and improved cognitive control. However, the exact mechanisms underlying RIPC's neuroprotective effects remain unclear. This systematic review aimed to explore the hypothesis that RIPC lowers neurocognitive dy

416. **Inhibition Of Nox2 Or Nlrp3 Inflammasome Prevents Cardiac Remote Ischemic Preconditioning**. *Sandra Benavides.* [Scholar] doi.org.

22 Introduction: Short episodes of ischemia-reperfusion (IR) in the heart (classical ischemic preconditioning, IPC) or in a limb (remote ischemic preconditioning, RIPC) before a prolonged ischemic episode, reduce the size of the infarct. It is unknown whether IPC and RIPC share common mechanisms of protection. Animals KO for NOX2, a superoxide-producing enzyme, or KO for NLRP3, a protein component of inflammasome, are not protected by IPC. The aim of this study was to investigate if NOX2 or NLRP3 i

421. **The Therapeutic Effects Of Transferring Remote Ischemic Preconditioning Serum In Rats With Neuropathic Pain Symptoms**. *Ozgur Gunduz.* [Scholar] doi.org.

23 Murry et al. showed that short-term ischemia is protective against subsequent injury and named this phenomenon as ischemic preconditioning (IPC) (8). It has also been shown that ischemic conditioning in a remote organ can protect another organ (9,10). However, remote ischemic conditioning is transmitted not yet well understood. The most likely mechanism is that the substances responsible for the protective effect are transported through the blood (11,12). In our previous study, we were able to c

426. **Bims-imicid 2023-05-28 Papers Issue Of 2023 - 05 - 28 Canagl....** *biomed.news.* [Prevalent Website] biomed.news.

1 IL-10 is a key anti-inflammatory cytokine that can limit immune cell activation and cytokine production in innate immune cell types; however, the exact mechanism by which IL-10 signaling subdues inflammation remains unclear.

434. **Hif - 1 Mediates The Protective Effect Of Plasma Extracell....** *spandidos-publications.com.* [Prevalent Website] spandidos-publications.com.

4 Remote ischaemic preconditioning (RIPC) is known to protect the heart against myocardial ischaemia/reperfusion (I/R) injury in numerous experimental and clinical settings (1-10), but the relevant mechanisms remain poorly understood.

437. **Mechanism And Therapies Of Oxidative Stress-mediated Cell De....** *hindawi.com.* [Trusted Publisher] hindawi.com.

2 However, the molecular mechanism governing oxidative stress-induced apoptosis, necroptosis, and autophagy is unclear and therapies that target these three types of cell death in combating ischemia reperfusion injury are lacking.

439. **Development Of Matrix Metalloproteinase-2 Inhibitors For Car....** *frontiersin.org.* [Trusted Publisher] frontiersin.org.

1 The discovery of endogenous cardioprotective mechanisms (Ischemic pre-, post-, and remote pre- and perconditioning) has allowed for the exploration of several molecular processes of cell injury and survival mechanisms during ischemia/reperfusion (I/R) (Ferdinandy et al., 2014).

446. **Neutrophils In Cancer: From Immune Defense To Tumor Promotion**. *Zhen Wang.* [Scholar] doi.org.

24 Recent reviews have focused on the roles of neutrophils in specific diseases, such as cardiometabolic disorders and lung ischemia-reperfusion injury, as well as the mechanisms underlying specific neutrophil activities, including activation of the tumor cGAS-STING pathway1 and neutrophil extracellular traps (NETs) signaling transduction2 .

448. **Drug Discovery For Remission Of Chronic Kidney Disease | Fr....** *nyas.org.* [Niche News] nyas.org.

1 This symposium will highlight the latest research on the physiological and genetic mechanisms underlying CKD, as well as novel imaging techniques and emerging biomarkers that promise improved detection and characterization of the disease.

453. **Investigating The Involvement Of Glycogen Synthase Kinase-3a....** *longdom.org.* [Prevalent Website] longdom.org.

1 Her key area of research is exploring the molecular mechanisms involved in inducing remote ischemic preconditioning-induced cardioprotection.

456. **Effect Of Remote Ischemic Conditioning And Red Blood Cells Biomarkers On Outcomes In Patients With Acute Stroke**. *Rolf Ankerlund Blauenfeldt.* [Scholar] doi.org.

25 Remote ischemic conditioning (RIC) is a simple and low - cost intervention that is thought to increase collateral blood flow through the vasodilatory effects of nitric oxide (NO) produced by the endothelium and red blood cells (RBCs).

464. **Safety And Efficacy Of Remote Ischemic Conditioning In Patients With Chronic Cerebral Artery Occlusion: A Prospective, Randomized, Controlled Study**. *Xunming Ji, MD.PhD.* [Clinical Trials] clinicaltrials.gov.

36 The purpose of this study is to investigate the protective effect and underlying mechanism of remote ischemic conditioning (RIC) on CCAO.

469. **The Potential Mechanism And Clinical Application Value Of Remote Ischemic Conditioning In Stroke**. *Yajun Zhu.* [Scholar] doi.org.

26 Although numerous animal researches have shown that the neuroprotective effect of remote ischemic conditioning may be related to neuroinflammation, cellular immunity, apoptosis, and autophagy, the exact underlying molecular mechanisms are unclear.

470. **Multi-center Randomized Pilot Clinical Trial On Remote Ischemic Conditioning In Acute Ischemic Stroke Within 9 Hours Of Onset In Patients Ineligible To Recanalization Therapies**. *Simone Beretta, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

37 Although the neuroprotective mechanisms remain elusive, evidence supports the role of both humoral and neuronal factors, such as the release of adenosine, bradykinin and nitric oxide in the blood, the activation of neuronal p-AKT and of several miRNAs; a recent pre-clinical study, conducted on experimental rat model of acute ischemic stroke, also showed significantly incre

475. **Does Long-term High-altitude Exposure Reduce Myocardial Inju....** *researchsquare.com.* [Popular Website] researchsquare.com.

1 Hausenloy DJ, Kharbanda RK, Moller UK, Ramlall M, Aaroe J, Butler R, et al. Effect of remote ischaemic conditioning on clinical outcomes in patients with acute myocardial infarction (CONDI-2/ERIC-PPCI): a single-blind randomised controlled trial.

486. **Remote Ischemic Conditioning For Anthracycline Cardiotoxicity**. *Borja Ibez.* [Scholar] doi.org.

27 Mallouppas et al17 present the results of the ERIC-Onc (Effect of Remote Ischaemic Conditioning in Oncology Patients) trial, in which 55 adult patients (mean age 49 years) with any cancer scheduled to receive anthracyclines were randomized to RIC (4 cycles of 5-minute arm ischemia followed by 5-minute reperfusion) or sham before each chemotherapy cycle.

492. **Remote Ischemic Conditioning In Experimental Hepatic Ischemia - Reperfusion: A Systematic Review And Meta - Analysis**. *Chun Tian.* [Scholar] doi.org.

28 Remote ischemic conditioning (RIC), including pre-conditioning (RIPC, before the ischemic event), per-conditioning (RIPerC, during the ischemic event), and post-conditioning (RIPostC, after the ischemic event), protects the liver in animal hepatic ischemia-reperfusion injuries models.

503. **Evaluating A Remotely Delivered Cardio-oncology Rehabilitation Intervention For Patients With Breast Cancer (remote-cor-b): Protocol For A Single-arm Feasibility Trial**. *Amaryllis Mavragani.* [Scholar] doi.org.

29 This study aims to assess the feasibility, safety, and preliminary efficacy of the REMOTE-CR program adapted for patients with breast cancer at risk of cardiotoxicity (REMOTE-COR-B).

504. **Remote Ischemic Conditioning**. [Wiki] en.wikipedia.org.

1 In addition to its efficacy in cardiological settings, RIC is thought to remotely recruit neuroprotective pathways, and its safety, feasibility, and low cost give it high potential in a wide variety of neurological conditions.

506. **A Pilot Randomized Controlled Trial Of Supervised, At-home, ...** *researchsquare.com.* [Popular Website] researchsquare.com.

2 Relative to other neuromodulation interventions, taVNS offers in principle advantages for home-use including self-administration, battery powered device, low cost, and a robust tolerability safety profile.

507. **27 Best Freelance Pcb Designers For Hire In December 2023 - ....** *upwork.com.* [Trusted Publisher] upwork.com.

1 Responsibilities include technical specifications, system design, schematic capture, power management including DC-DC conversion and motor/solenoid control, PCB layout, design for cost, design for test, design for manufacturability, RF performance, EMC and FCC compliance, product safety, Firmware and programming, design validation testing and system integration.

508. **Ceribell, Inc.: 424b4 (424b4)**. *Ceribell, Inc.* [SEC Filings] sec.gov.

6 If any of our brand-building activities prove less successful than anticipated, or such activities are inhibited by the negative perceptions of healthcare professionals, including with respect to AI-enabled devices or reduced montage EEG in general, or the safety, reliability and efficacy of the Ceribell System, it could materially adversely impact our ability to attract new and retain existing customers and the rate of use of our products by existing customers.

511. **Optimising The Analysis Of Vascular Prevention Trials: Re-assessment Of The Tardis Trial, The First Prevention Trial To Adopt An Ordinal Primary Outcome Measure**. *Lisa J. Woodhouse.* [Scholar] doi.org.

30 The Triple Antiplatelets for Reducing Dependency after Ischaemic Stroke (TARDIS) trial was the first vascular prevention trial to prospectively use ordinal primary efficacy and safety outcome measures, and also recorded ordinal data for other outcomes. (

533. **Revelation Biosciences, Inc.: 424b3 (424b3)**. *REVELATION BIOSCIENCES, INC.* [SEC Filings] sec.gov.

7 safety and biomarker activity data from our Phase 1 clinical study was announced in June of 2024, showing a significant increase in anti-inflammatory cytokines including IL-1RA and IL-10.

535. **Page Created By Clifford Solis Aboriginal Heart And Stroke P....** *readkong.com.* [Prevalent Website] readkong.com.

1 The SA Aboriginal Heart and Stroke Plan is concerned about the following conditions: Coronary Heart Disease (also known as ischaemic heart disease): including Acute Coronary Syndromes (ACS) (ACS includes angina and myocardial infarction) Cerebrovascular disease, including Ischaemic and Haemorrhagic Stroke Vascular disease, including

545. **Nitric Oxide Donor And Anti-oxidant Compounds | University Of North Texas Health Science Center**. *UNIVERSITY OF NORTH TEXAS HEALTH SCIENCE CENTER.* [Patents] patents.google.com.

3 In the United States, the FDA is responsible for protecting the public health by assuring the safety, effectiveness, quality, and security of human and veterinary drugs, vaccines and other biological products, and medical devices.

546. **Standardized Clinical Assessments And Advanced Ai-driven Instruments Used To Evaluate Neurofunctional Deficits, Including Within Biomarker Based Framework, In Parkinson's Disease - Human Intelligence**. *Aurelian Anghelescu.* [Scholar] doi.org.

31 In the medical field, where professionals' primary focus is the patient's outcomes, safety and wellbeing, incorrect, erroneous data can severely affect the patients' ability to receive optimal care.

550. **System And Methods For Adaptive Body Positioning During Chest Compressions | Zoll Medical Corporation**. *ZOLL Medical Corporation.* [Patents] patents.google.com.

4 The remote computing devices may include a server and/or another computing device (e.g., a personal computer, a laptop computer, a mobile device, a hand-held device, a wireless device, a tablet, a medical device, a defibrillator, a patient monitor, a wearable device (e.g., a wrist-worn device, a head-worn device, etc.), or combinations thereof.

574. **Clot Management Devices Market Size, Share, Revenue, Trends And Drivers For 2024-2033**. *EIN Presswire.* [Niche News] einpresswire.com.

1 Clot management devices in the healthcare sector serve as instrumental components for treating conditions such as deep vein thrombosis, pulmonary embolism, and ischemic strokes, providing patients with effective and minimally invasive solutions and enhancing overall treatment outcomes and patient safety.

580. **New Insertable Cardiac Monitors Show High Diagnostic Yield And Good Safety Profile In Real-world Clinical Practice: Results From The International Prospective Observational Smart Registry**. *Fabio Quartieri.* [Scholar] doi.org.

32 The aim of our study was to evaluate the safety and clinical value associated with a new generation ICM (Confirm Rx , Abbott, Illinois, USA), featuring a new remote monitoring system based on smartphone patient applications.

600. **Diagnostic Method And System With Optical And Temperature Sensors For Imaging And Mapping Fluorescence Intensities Of Tissue | University Health Network**. *Ralph Sebastian Dacosta.* [Patents] patents.google.com.

5 Using this device, high-resolution fluorescence images may be sent as email attachments to wound care specialists from remote wound care sites for immediate consultation with clinical experts, microbiologists, etc. at specialized clinical wound care and management centers.

602. **Determinants Of Enrolment Rate In 397 Clinical Trials For Healing Diabetic Foot Ulcers: A Systematic Review**. *Leyao Zhang.* [Scholar] doi.org.

33 Second, multicentre studies experience more challenges in logistic operations, data management, study costs and cross-site heterogeneity in the intervention implementation due to some uncontrollable factors such as medical training, culture, compliance and handling of drug safety and adverse events.

603. **Neural Mechanisms In Remote Ischaemic Conditioning In The Heart And Brain: Mechanistic And Translational Aspects**. *Marina V. Basalay*. [Scholar] doi.org.

34 Remote ischaemic conditioning (RIC) is a promising method of cardioprotection, with numerous clinical studies having demonstrated its ability to reduce myocardial infarct size and improve prognosis.

604. **Remote Ischaemic Conditioning In Stemi Patients In Sub-saharan Africa: The Ric-africa Trial**. *Mpiko Ntsekhe, PhD*. [Clinical Trials] clinicaltrials.gov.

38 Background: Remote ischaemic conditioning (RIC) using transient limb ischaemia and reperfusion has been shown to reduce myocardial infarct size in animal studies and small proof-of-concept clinical studies in ST-segment elevation myocardial infarction (STEMI) patients.

606. **Identification Of Chicken Transglutaminase 1 And In Situ Loc....** *mdpi.com*. [Trusted Publisher] mdpi.com.

1 The purpose of this review is to discuss how in vitro studies with pluripotent stem cells (PSCs), such as embryonic and induced pluripotent stem cells (ESC, iPSC), can underpin the research on non-genetic heart conditions.

607. **Overview Of Experimental And Clinical Findings Regarding The....** *hindawi.com*. [Trusted Publisher] hindawi.com.

3 C. Penna, R. Rastaldo, D. Mancardi et al., "Post-conditioning induced cardioprotection requires signaling through a redox-sensitive mechanism, mitochondrial ATP-sensitive K+ channel and protein kinase C activation," Basic Research in Cardiology, vol. 101, no. 2, pp. 180 - 189, 2006.

614. **Impact Of Peripheral Conditioning On Reperfusion Injury Following Primary Percutaneous Coronary Intervention In Diabetic And Non-diabetic Stemi Patients**. *Veljko Andric*. [Scholar] doi.org.

35 Systematic review from 2015 also demonstrated the effects of remote ischemic conditioning on cardioprotection among many included studies and it was proven that it significantly decreased troponin and CK MB in blood of patients (17).

626. **A Single Centre Double-blinded Randomized Placebo Controlled Pilot Study Investigating The Effect Of Remote Ischaemic Preconditioning In Oncology Patients Undergoing Chemotherapy (eric-onc)**. *Derek M Yellon, PhD FACC FAHA*. [Clinical Trials] clinicaltrials.gov.

39 Ischaemia reperfusion injury also shares common biochemical pathways with anthracycline cardiotoxicity, and thus RIC may be a novel form of nonpharmacological cardioprotection that can be applied when undergoing anthracycline chemotherapy.

632. **Remote Ischemic Preconditioning Of Human Myocardium**. *Marek A. Deja, MD PhD*. [Clinical Trials] clinicaltrials.gov.

40 In the writings there are no experiments that would prove that the remote preconditioning protocol effects on the higher protection of the human myocardial cells, against the ischemia-reperfusion injury.

636. **Pathways For Cardioprotection In Perspective: Focus On Remote Conditioning And Extracellular Vesicles**. *Stefano Comit*. [Scholar] doi.org.

36 To date, experimental investigations of acute ischemia-reperfusion injury (IRI) have generally demonstrated the efficacy of local ischemic preconditioning and postconditioning cardioprotection techniques as well as of remote conditioning.

639. **The Copper-microrna Pathway Is Integrated With Developmental....** *mdpi.com*. [Trusted Publisher] mdpi.com.

2 Baxter, G.F.; Schulz, R. Interaction of risk factors, comorbidities, and comedications with ischemia/reperfusion injury and cardioprotection by preconditioning, postconditioning, and remote conditioning.

640. **Nitric Oxide Functions Characterization Of The Role Of Nitri....** *karger.com*. [Niche News] karger.com.

1 Ischemic preconditioning provides powerful cardioprotection against myocardial ischemia-reperfusion injury.

641. **Gastroprotective Effects Of Hydrogen Sulfide, Carbon Monoxid....** *jsurgmed.com*. [Prevalent Website] jsurgmed.com.

1 Andreadou I, Iliodromitis EK, Rassaf T, Schulz R, Papapetropoulos A, Ferdinandy P. The role of gasotransmitters NO, H2S and CO in myocardial ischaemia/reperfusion injury and cardioprotection by preconditioning, postconditioning and remote conditioning.

646. **Nicotinamide Adenine Dinucleotide Emerges As A Therapeutic T....** *researchgate.net*. [Trusted Publisher] researchgate.net.

1 Ischaemic preconditioning, postconditioning and remote conditionings are reliable interventions to protect the myocardium against ischaemia - reperfusion injuries through activating various signaling pathways and intracellular mediators.

648. **The Role Of Gasotransmitters No, H2s And Co In Myocardial Is....** *researchexperts.utmb.edu*. [Credible Web Content] researchexperts.utmb.edu.

1 Andreadou, I, Iliodromitis, EK, Rassaf, T, Schulz, R, Papapetropoulos, A & Ferdinandy, P 2015, 'The role of gasotransmitters NO, H2S and CO in myocardial ischaemia/reperfusion injury and cardioprotection by preconditioning, postconditioning and remote conditioning', British Journal of Pharmacology, vol. 172, no. 6, pp. 1587-1606.

650. **Novel Molecular Targets Participating In Myocardial Ischemia....** *hindawi.com.* [Trusted Publisher] hindawi.com.

4 I. Andreadou, E. K. Iliodromitis, T. Rassaf, R. Schulz, A. Papapetropoulos, and P. Ferdinandy, "The role of gasotransmitters NO, H2S and CO in myocardial ischaemia/reperfusion injury and cardioprotection by preconditioning, postconditioning and remote conditioning," British Journal of Pharmacology, vol. 172, no. 6, pp. 1587 - 1606, 2015.

652. **Amplification Of Cardioprotective Response Of Remote Ischemic Preconditioning In Rats By Quercetin: Potential Role Of Activation Of Mtor-dependent Autophagy And Nrf2**. *Ayush Kandpal.* [Scholar] pubmed.ncbi.nlm.nih.gov.

2 Noninvasive remote ischemic preconditioning (RIPC) is a practical, acceptable, and feasible conditioning technique reported to provide cardioprotection in myocardial ischemia-reperfusion injury (MIRI).

661. **Reperfused Myocardial Infarction**. *Rohan Dharmakumar.* [Scholar] doi.org.

37 29 A myocardial molecular self-defense program can also be activated by several brief cycles of ischemia and reperfusion in tissues or organs remote from the heart, that is, there is cardioprotection by remote ischemic conditioning.

666. **Radiolabeled Cannabinoid Receptor 2 Ligand | Hoffmann-la Roche Inc**. *HOFFMANN-LA ROCHE INC.* [Patents] patents.google.com.

6 The humoral hypothesis proposes that the endogenous substance (such as adenosine, bradykinin, opioids, CGRP, endocannabinoids, Angiotensin I or some other as yet unidentified humoral factors) generated in the remote organ or tissue enters the blood stream and activates its respective receptor in the target tissue thereby recruiting the various intracellular pathways of cardioprotection implicated in ischemic preconditioning.

687. **Remote Ischemic Conditioning: A Promising Therapeutic Intervention For Multi-organ Protection**. *Da Zhou.* [Scholar] doi.org.

38 Cardioprotection induced by ischemic preconditioning in remote vessels, such as the femoral, renal, and mesenteric arteries has been confirmed in experimental studies, while subsequent transection of the corresponding nerves was able to blunt this effect, suggesting the necessity of afferent nerves for protective signaling transduction (35,36).

688. **Efficacy Of Remote Ischaemic Preconditioning On Outcomes Following Non-cardiac Non-vascular Surgery: A Systematic Review And Meta-analysis**. *Aikaterini Papadopoulou.* [Scholar] doi.org.

39 The mechanism underlying remote ischaemic preconditioning (RIPC) is not completely understood, but likely involves both neuronal and humoral factors that result in vagally mediated cardioprotection and nitric oxide-induced mitochondrial protection, respectively (Hausenloy et al. 2015; Sivaraman et al. 2015; Wu et al. 2018).

689. **Theranostics 2019; 9(22):6550-6567. 35218 This Issue Cite H....** *thno.org.* [Prevalent Website] thno.org.

1 HIF-1 is able to mediate cardioprotection induced by ischemic preconditioning; however, prolonged hypoxic conditions can lead to aberrant ventricular remodeling and cardiac fibrosis (10-12).

690. **Scielo - Acta Cirurgica Brasileira Publication Of: Sociedade....** *scielo.br.* [Niche News] scielo.br.

1 Remote ischemic preconditioning-induced late cardioprotection: possible role of melatonin-mitoKATP-H2S signaling pathway

693. **Caveolin-3: Therapeutic Target For Diabetic Myocardial Ischemia/reperfusion Injury**. *Xinyu Wen.* [Scholar] doi.org.

40 Our study has shown that remifentanil preconditioning-induced protection is abolished in diabetic hearts due to hyperglycemia-induced oxidative stress and impaired Cav-3 expression, while antioxidant treatment with N-acetylcysteine improves Cav-3 expression and Cav-3-dependent Akt and STAT3 activation, thereby restoring remifentanil preconditioning-induced cardioprotection

694. **Effect Of Remote Ischaemic Conditioning On Clinical Outcomes In Patients With Acute Myocardial Infarction (condi-2/eric-ppci): A Single-blind Randomised Controlled Trial**. *Derek J Hausenloy.* [Scholar] doi.org.

41 In summary, the findings from our trial provide conclusive evidence that remote ischaemic conditioning offers no benefits on either myocardial infarct size or clinical outcomes at 12 months in patients with STEMI treated by PPCI. Unfortunately, remote ischaemic conditioning had been the most promising cardioprotective strategy for improving clinical outcomes following STEMI, and few other prospective options exist. As such, further studies are needed to identify novel cardioprotective targets an

695. **Basic Research In Cardiology, , ...** *x-mol.com.* [Very Popular Website] x-mol.com.

1 The effect of limb remote ischaemic conditioning (RIC) on myocardial infarct (MI) size and left ventricular ejection fraction (LVEF) was investigated in a pre-planned cardiovascular magnetic resonance (CMR) substudy of the CONDI-2/ERIC-PPCI trial.

697. **Esc Working Group On Cellular Biology Of The Heart Title: Ca....** *escardio.org.* [Niche News] escardio.org.

1 Title: Effect of remote ischaemic conditioning on clinical outcomes in patients with acute myocardial infarction (CONDI-2/ERIC-PPCI): a single-blind randomised controlled trial

701. **Remote Ischemic Conditioning As A Form Of Hormesis**. *Robert A. Kloner*. [Scholar] doi.org.

42 Remote ischemic conditioning has not been consistently beneficial in other clinical settings, such as cardiac surgery; however, these patients are already subject to cardioprotection including use of hypothermia, cardioplegic agents, and certain anesthetic agents that may be cardioprotective.

702. **Remote Ischaemic Preconditioning In Isolated Aortic Valve And Coronary Artery Bypass Surgery: A Randomized Trial**. *Marco Moscarelli*. [Scholar] pubmed.ncbi.nlm.nih.gov.

3 This trial was designed and patients were recruited at a time when the benefits of remote ischaemic preconditioning during open-heart surgery were still controversial.

703. **Antioxidant Solution In Combination With Angiotensin-(1-7) P....** *hindawi.com*. [Trusted Publisher] hindawi.com.

5 Basic research showed that conditions of tissue hypoxia led to an increase of -KG serum levels, resulting in cardioprotection via the kynurenic acid pathway (27).

705. **Wnt Signaling Inhibitors As Therapeutic Approach In Ischemic Heart Disease**. *Barbora Boansk Svetlkov*. [Scholar] doi.org.

43 Therefore, a better understanding of the precise mechanisms of cardiovascular disease, the involvement of Wnt signaling in its occurrence, and the recognition of the common role of Wnt signaling inhibitors in cardioprotection mechanisms is important for the better management of patients with ischemia.

709. **Effects Of Late, Repetitive Remote Ischaemic Conditioning On Myocardial Strain In Patients With Acute Myocardial Infarction**. *J. Ranjit Arnold*. [Scholar] doi.org.

44 Another potential confounder is variation in the conditioned tissue mass: RIC administered to a leg may provide a greater stimulus than on a forearm: in a murine model, dual hindlimb RIC (with a greater mass of ischaemic/reperfused tissue) led to greater cardioprotection than single hindlimb RIC (33).

712. **Role Of Remote Ischaemic Conditioning In Fracture Healing And Orthopaedic Surgery - A Systematic Review And Narrative Synthesis**. *Alison Buck*. [Scholar] doi.org.

45 Cardioprotection following hip fracture surgery seen within the first 30 days (46) may be presumed to be related to endothelial preservation in part and is suggested from FMD sub-studies (49), but may also be related to preservation of mitochondrial function as previously demonstrated in clinical studies of RIC in coronary artery bypass surgery (70).

714. **Cardiac Innervation In Acute Myocardial Ischaemia/reperfusion Injury And Cardioprotection**. *Derek J Hausenloy*. [Scholar] pubmed.ncbi.nlm.nih.gov.

4 A number of cardiac neural pathways mediate the beneficial effects of cardioprotective strategies such as ischaemic preconditioning and remote ischaemic conditioning, and nerve stimulation may therefore provide a novel therapeutic strategy for cardioprotection.

717. **Orcid Number: Radwa Ali Mehanna (0000-0001-9048-4464); Marwa....** *wjgnet.com*. [Popular Website] wjgnet.com.

1 IL-6 also activates downstream signaling pathways and contributes to cardioprotection and vessel formation in the heart through activation of gp130/signal transducer and activator of transcription 3. The Gp130/signal transducer and activator of transcription 3 is essential for the commitment of cardiac SCA-1+ cells into endothelial lineage(118).

723. **Nicolau Beckmann Novartis Institutes For Biomedical Research....** *frontiersin.org*. [Trusted Publisher] frontiersin.org.

2 Although our present study provided the first data for the presence of SST in the heart, earlier data showed elevated plasma CGRP concentration in a rat model of ischemia/reperfusion after ischemic preconditioning, which can also mediate cardioprotection (Chen et al., 1999; Luo et al., 2004; Randhawa and Jaggi, 2015).

724. **The Dark Triad Of Particulate Matter, Oxidative Stress And Coronary Artery Disease: What About The Antioxidant Therapeutic Potential**. *Daniele Grifoni*. [Scholar] doi.org.

46 In this context, administration of vanillic acid (phenolic acid and an oxidized vanillin form) in an experimental model of ischemia/reperfusion isolated rat heart exposed to PM10 resulted in cardioprotection, as evidenced by effects on hemodynamic parameters, OS and antioxidant enzymes, and endothelial NO synthase (eNOS) and iNOS mRNA expression levels (212).

728. **Effects Of Remote Ischemic Conditioning On Cerebral Hemodyna....** *dovepress.com*. [Niche News] dovepress.com.

1 Activation of the RISK pathway by RIC has been confirmed to be associated with cardioprotection in many experimental models.

730. **Protective Role Of Silibinin Against Myocardial Ischemia/rep....** *ijbs.com*. [Prevalent Website] ijbs.com.

1 Thus, silibinin-mediated cardioprotection in myocardial I/R injury is associated with decreased apoptosis, oxidative stress and inflammatory response through deactivation of NF-B pathway.

731. **Is There A Mitochondrial Protection Via Remote Ischemic Conditioning In Settings Of Anticancer Therapy Cardiotoxicity?**. *Petra Kleinbongard*. [Scholar] doi.org.

47 A Overview of known effects of remote ischemic conditioning and anthracyclines on mitochondrial function: remote ischemic conditioning activates intracellular survival signaling cascades all of them converge to mitochondria resulting in mitochondrial protection, cell survival, and thus, cardioprotection.

732. **Mitochondrial Kinase Signaling For Cardioprotection**. *Kerstin Boengler*. [Scholar] doi.org.

48 It is hypothesized that mitochondrial p38 MAPK contributes to cardioprotection via reduced ROS formation; however, the impact of mitochondrial p38 MAPK on the function of the organelles under physiological conditions and in the context of I/R injury needs to addressed in further and more detailed studies.

733. **Reagents, Compositions And Methods For Improving Viability And Function Of Cells, Tissues And Organs | Targa Biomedical Inc**. *TARGA BIOMEDICAL INC.* [Patents] worldwide.espacenet.com.

1 In this setting, cardioprotection would involve a reduction on I/R-induced cell death, with inhibition of mitochondrial permeability transition pore (mPTP) opening, and lowering of oxidative stress, leading to a reduced infarct area and preservation of ventricular function.

737. **Cardioprotection**. [Wiki] en.wikipedia.org.

2 Cardioprotection encompasses several regimens that have shown to preserve function and viability of cardiac muscle cell tissue subjected to ischemic insult or reoxygenation.

739. **Remote Ischaemic Preconditioning Involves Signalling Through The Sdf-1/cxcr4 Signalling Axis**. *Sean M Davidson*. [Scholar] pubmed.ncbi.nlm.nih.gov.

5 Much interest has been stimulated by the phenomenon of remote ischaemic conditioning (RIC), in which the preconditioning stimulus is applied to a limb remote from the heart to stimulate cardioprotection via an unidentified humoral factor, believed to be a protein between 3.5 and 15 kDa.

740. **Helium Conditioning Increases Cardiac Fibroblast Migration W...**. *mdpi.com*. [Trusted Publisher] mdpi.com.

3 Buzas, E.I.; Ferdinandy, P. Cardioprotection by remote ischemic preconditioning of the rat heart is mediated by extracellular vesicles.

741. **Kardioprotektiv Gyogyszertargetek Azonositasa Iszkemias Sziv...**. *semmelweis.hu*. [Popular Website] semmelweis.hu.

1 Giricz Z, Varga ZV, Baranyai T, Sipos P, Paloczi K, Kittel A, Buzas EI, Ferdinandy P. Cardioprotection by remote ischemic preconditioning of the rat heart is mediated by extracellular vesicles.

744. **An Optimized Protocol For The Enrichment Of Small Vesicles F...**. *trillium.de*. [Prevalent Website] trillium.de.

1 Giricz, Z., et al., Cardioprotection by remote ischemic preconditioning of the rat heart is mediated by extracellular vesicles.

745. **Stem/progenitor Cells In Cardiopulmonary Health, Disease, An...**. *hindawi.com*. [Trusted Publisher] hindawi.com.

6 Z. Giricz, Z. V. Varga, T. Baranyai et al., "Cardioprotection by remote ischemic preconditioning of the rat heart is mediated by extracellular vesicles," Journal of Molecular and Cellular Cardiology, vol. 68, pp. 75 - 78, 2014.

746. **Dysregulation Of Cardiac Mitochondrial Aldehyde Dehydrogenase 2: Studies In Dogs With Chronic Heart Failure**. *Ramesh C. Gupta*. [Scholar] doi.org.

49 More recently, mALDH2 has been associated with remote preconditioning in humans (26) and metabolic remodeling-related cardioprotection in patients with congenital heart disease (27).

747. **The Effect Of Remote Preconditioning In Primary Percutaneous Intervention Of Acute St Elevation Myocardial Infarction**. *Torsten T Nielsem, MD*. [Clinical Trials] clinicaltrials.gov.

41 We have recently found that the infarct reducing effect can be obtained by obstruction of an extremity even though the remote stimulus is initiated during sustained occlusion of a coronary artery, the so-called remote preconditioning (rPerC).

748. **The Effect Of Remote Ischemic Conditioning And Glyceryl Trinitrate On Perioperative Myocardial Injury In Cardiac Bypass Surgery Patients: Rationale And Design Of The Eric-gtn Study**. *Ashraf Hamarneh*. [Scholar] pubmed.ncbi.nlm.nih.gov.

6 Remote ischemic conditioning (RIC) using transient limb ischemia/reperfusion has been reported to reduce perioperative myocardial injury in patients undergoing coronary artery bypass grafting and/or valve surgery. The role of intravenous glyceryl trinitrate (GTN) therapy administered during cardiac surgery as a cardioprotective agent and whether it interferes with RIC cardioprotection is not clear and is investigated in the ERIC-GTN trial (http://www.clinicaltrials.gov: NCT01864252). The ERIC-G

749. **Remote Ischemic Preconditioning In Coronary Artery Bypass Gr....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

42 Kottenberg E, Musiolik J, Thielmann M, Jakob H, Peters J, Heusch G. Interference of propofol with signal transducer and activator of transcription 5 activation and cardioprotection by remote ischemic preconditioning during coronary artery bypass grafting.

753. **Relationship Of Timi Myocardial Perfusion Grade To Mortality....** *ahajournals.org.* [Niche News] ahajournals.org.

1 Hassan A, Shams-Eddin H, Abdel-Rahim M, El-Hafeez H and Edroos S (2015) Cardio- and reno-protective effect of remote ischemic preconditioning in patients undergoing percutaneous coronary intervention.

761. **Exploring The Role And Inter-relationship Among Nitric Oxide, Opioids, And Katp Channels In The Signaling Pathway Underlying Remote Ischemic Preconditioning Induced Cardioprotection In Rats**. *Sapna Aggarwal.* [Scholar] pubmed.ncbi.nlm.nih.gov.

7 This study explored the inter-relationship among nitric oxide, opioids, and KATP channels in the signaling pathway underlying remote ischemic preconditioning (RIPC) conferred cardioprotection.

762. **Cardioprotection In Coronary Artery Bypass Graft Surgery: The Impact Of Remote Ischemic Preconditioning On Modulating Lox-1 And Sod-1 To Counteract Oxidative Stress**. *Cezar-Dumitrel Luca.* [Scholar] doi.org.

50 The significant changes in plasma levels of both LOX-1 and SOD-1 observed in this study strongly suggest that remote ischemic preconditioning (RIPC) plays an important role in reducing oxidative stress and enhancing the antioxidative status of patients. This is evidenced by the marked decrease in LOX-1 levels, alongside a corresponding increase in SOD-1 levels, indicating that RIPC may contribute to improved cardioprotection through these mechanisms.

763. **Remote Ischemic Preconditioning Attenuates Ischemia-reperfusion Injury-induced Reductions In Vascular Function Through Release Of Endogenous Opioids**. *Alexander J Rosenberg.* [Scholar] pubmed.ncbi.nlm.nih.gov.

8 Remote ischemic preconditioning (RIPC) is a therapy characterized by repeated bouts of limb ischemia and reperfusion.

766. **Treatment Of An Ischemic Heart Disease | Yeda Research And Development Co. Ltd**. *Yeda Research and Development Co. Ltd.* [Patents] ppubs.uspto.gov.

5 Hinkel, R. et al. Heme Oxygenase-1 Gene Therapy Provides Cardioprotection Via Control of Post-Ischemic Inflammation: An Experimental Study in a Pre-Clinical Pig Model.

773. **Mir-1 Microrna Precursor Family**. [Wiki] en.wikipedia.org.

3 * MicroRNA-1 downregulation by propranolol in a rat model of myocardial infarction: a new mechanism for ischaemic cardioprotection

803. **Ros-mediated Nlrp3 Inflammasome Activation In Brain, Heart, ...** *scienceopen.com.* [Prevalent Website] scienceopen.com.

1 ROS-Mediated NLRP3 Inflammasome Activation in Brain, Heart, Kidney, and Testis Ischemia/Reperfusion Injury - ScienceOpen

805. **Non-coding Rna Protecting Against Heart Failure | Medizinische Hochschule Hannover**. *Thomas Thum.* [Patents] ppubs.uspto.gov.

6 Cardiac ischemia-reperfusion injury (or reperfusion injury or cardiac IRI) is the heart damage caused when blood supply returns to the heart (re-+perfusion) after a period of ischemia or lack of oxygen (anoxia or hypoxia).

807. **Protective Effects Of Hypoxic Conditioning Treatment On Brain And Cardiac Tissues Following Thoracic Aorta Occlusion**. *Jun Xu.* [Scholar] doi.org.

51 In this study, the TAO model was used to investigate thoracic aorta ischemia/reperfusion injury in heart and brain tissues.

808. **Diagnostic And Prognostic Roles Of Endothelialand Platelet-derived Extracellular Vesicles In Cardiovascular Diseases**. *Riccardo Di Febo.* [Scholar] doi.org.

52 Specific miRNAs delivered via small EVs from milk, such as miR-146a, have demonstrated cardioprotective effects by inhibiting the nuclear factor kappa B (NF-B) signaling pathway, reducing myocardial tissue apoptosis, and enhancing cardiac function following myocardial ischemia - reperfusion injury (94).

810. **Manganese - Enhanced Mri During Remotely Induced Myocardial Ischemia Reperfusion Injury In Male Mice**. *Matic Pusovnik.* [Scholar] doi.org.

53 This degradation in cardiac function stipulated that remote occlusion of the LAD is suitable as a robust experimental model to study ischemia reperfusion injury in vivo in mice also on a longitudinal scale.

835. **Effect Of Remote Ischemic Conditioning In Patients With Chronic Ischemic Heart Failure (condi-hf)**. *Hans Erik Btker, Prof.* [Clinical Trials] clinicaltrials.gov.

43 Remote ischemic conditioning (RIC) by brief non-lethal episodes of ischemia in a remote organ or tissue (e.g. a limb) is a novel therapeutic method to achieve protection against ischemia-reperfusion injury in the target organ, e.g. the heart .

836. **Cardioprotective Efficacy Of Limb Remote Ischaemic Preconditioning In Rats: Discrepancy Between A Meta-analysis And A Three-centre In Vivo Study**. *Nabil V Sayour.* [Scholar] doi.org.

54 Remote ischaemic conditioning (RIC) is a cardioprotective method that is elicited by short-term, non-lethal cycles of ischaemia and reperfusion to an organ or tissue other than the heart.

838. **Role Of Remote Ischaemic Conditioning In Fracture Healing And Orthopaedic Surgery - A Systematic Review And Narrative Synthesis**. *Alison Buck.* [Scholar] doi.org.

55 Since then, RIC has been studied in ischaemia - reperfusion injury of other organs such as the brain, kidney and liver, as well as for conditions such as sepsis and renal failure (12, 15).

842. **....** *daneshyari.com.* [Popular Website] daneshyari.com.

1 Comparison of hepatoprotective effect from ischemia-reperfusion injury of remote ischemic preconditioning of the liver vs local ischemic preconditioning of the liver during human liver resections

846. **Effects Of Remote Ischemic Preconditioning In Hepatectomy: A Systematic Review And Meta-analysis**. *Chun Tian.* [Scholar] doi.org.

56 Animal experiments have confirmed that remote ischemic preconditioning (RIPC) can reduce hepatic ischemia-reperfusion injuries (HIRIs), significantly improving early tissue perfusion and oxygenation of the residual liver after resections, accelerating surgical prognoses, and improving survival rates.

852. **Remote Ischemic Preconditioning For Kidney Protection: Gsk3-centric Insights Into The Mechanism Of Action**. *Zhangsuo Liu.* [Scholar] doi.org.

57 Among these trials, the Remote Ischaemic Preconditioning for Heart Surgery (RIPHeart) study31 is a prospective, randomized, double-blind, multicentre, controlled trial including 2,070 adult cardiac surgical patients.

864. **Cardioprotection Evoked By Remote Ischaemic Preconditioning Is Critically Dependent On The Activity Of Vagal Pre-ganglionic Neurones**. *Svetlana Mastitskaya.* [Scholar] pubmed.ncbi.nlm.nih.gov.

9 Innate mechanisms of inter-organ protection underlie the phenomenon of remote ischaemic preconditioning (RPc) in which episode(s) of ischaemia and reperfusion in tissues remote from the heart reduce myocardial ischaemia/reperfusion injury.

867. **"creatine Kinase, Mb Form" Is A Descriptor In The National L....** *connects.catalyst.harvard.edu.* [Credible Web Content] connects.catalyst.harvard.edu.

1 Remote Limb Ischaemic Postconditioning Protects Against Myocardial Ischaemia/Reperfusion Injury in Mice: Activation of JAK/STAT3-Mediated Nrf2-Antioxidant Signalling.

874. **Remote Ischemic Conditioning: A Potential Treatment For Chro....** *karger.com.* [Niche News] karger.com.

2 Limb remote ischaemic postconditioning-induced elevation of fibulin-5 confers neuroprotection to rats with cerebral ischaemia/reperfusion injury: activation of the AKT pathway

885. **Effects Of Thiopental In Cold Ischemia In Liver Transplantat....** *jsurgmed.com.* [Prevalent Website] jsurgmed.com.

2 Tufek A, Tokgoz O, Aliosmanoglu I, Alabalik U, Evliyaoglu O, Ciftci T, et al. The protective effects of dexmedetomidine on the liver and remote organs against hepatic ischemia reperfusion injury in rats.

889. **Eur Rev Med Pharmacol Sci 2013; 17 (2): 170-178 Department O....** *europeanreview.org.* [Prevalent Website] europeanreview.org.

1 The effects of curcumin on the liver and remote organs after hepatic ischemia reperfusion injury formed with Pringle manoeuvre in rats

899. **Preconditioning In Neuroprotection: From Hypoxia To Ischemia**. *Sijie Li.* [Scholar] doi.org.

58 This "nonlocal" effect of remote IPC may provide broader protection against ischemia-reperfusion injury and the CPB-induced systemic inflammatory reaction (Luh and Yang, 2006).

911. **Antagonist Of The Mirna-106b-5p To Treat Or Prevent The Cardiotoxicity That Is Developed In Oncologic Patients After Receiving Anthracycline-based Chemotherapy | Universidad De Murcia**. *Domingo Andrs PASCUAL FIGAL.* [Patents] ppubs.uspto.gov.

7 In a study published in 2016, using an experimental animal model with cerebral ischemia/reperfusion (I/R) injury, authors demonstrated that its systemic silencing was able to ameliorate cerebral damage via blocking oxidative stress (for a review, see Li et al., An Antagomir to MicroRNA-106b-5p Ameliorates Cerebral Ischemia and Reperfusion Injury in Rats Via Inhibiting Apop

913. **Renoprotective Effects Of Ripc Measured By Bold-mri After Pn**. *physiciansweekly.com.* [Niche News] physiciansweekly.com.

1 Researchers conducted a retrospective study to investigate whether Blood Oxygenation Level Dependent-MRI (BOLD-MRI) can quantify the renoprotective effect of RIPC on ischemia/reperfusion injury (IRI) after partial nephrectomy (PN).

914. **The Interplay Between Gut Microbiota, Adipose Tissue, And Migraine: A Narrative Review**. *Valentina Biagioli.* [Scholar] doi.org.

59 In a study by Danielle G. Souza et al., germ-free mice exhibited no local, remote, or systemic inflammatory response following intestinal ischemia - reperfusion injury, unlike conventional mice, which showed significant edema, neutrophil influx, hemorrhage, and elevated TNF- levels.

916. **Remote Ischemic Preconditioning For The Prevention Of Contrast-induced Acute Kidney Injury In Diabetic Patients Undergoing Percutaneous Coronary Intervention**. *Eun-Seok Shin, MD., PhD.* [Clinical Trials] clinicaltrials.gov.

44 Remote ischemic preconditioning (RIPC) is a non-pharmacological strategy inducing transient episodes of ischemia by the occlusion of blood flow in non-target tissue such as a limb, before a subsequent prolonged ischemia-reperfusion injury occurs in a more distant organ.

917. **The Effects Of 8 Weeks Of Remote Ischaemic Preconditioning Combined With Exercise Training On (cerebro) Vascular Function**. [Clinical Trials] clinicaltrials.gov.

45 Remote Ischaemic preconditioning' (RIPC) is defined as short controlled sequences of repeated inflation of a blood pressure cuff on the upper arm (to reduce blood flow) for 5 mins followed by recovery (cuff deflation so blood flows normally again).

930. **Neurotree - Rouhollah Habibey Rouhollah Habibey Neuroscience....** *neurotree.org.* [Prevalent Website] neurotree.org.

1 Mehrjerdi FZ, Aboutaleb N, Pazoki-Toroudi H, et al. (2015) The Protective Effect of Remote Renal Preconditioning Against Hippocampal Ischemia Reperfusion Injury: Role of KATP Channels.

932. **Il-6/gata2/serpine1 Pathway Is Implicated In Regulating Cellular Senescence After Acute Kidney Injury**. *Hongshuang Su.* [Scholar] pubmed.ncbi.nlm.nih.gov.

10 Our previous research has demonstrated that remote ischemic postconditioning (RIPC) can attenuate renal cellular senescence and elevation of serum level of interleukin-6 (IL-6) induced by ischemia-reperfusion injury following crush injury.

935. **Apigenin Attenuates Hepatic Ischemia - Reperfusion-induced Lung Injury Via Downregulation Of Mmp-3 And Mcp-1: An Experimental Study In Rats**. *Chrysovalantis Mariorakis.* [Scholar] doi.org.

60 The investigation was specifically designed to assess immunohistochemical expression of MMP-3 and MCP-1 in lung tissue, which served as the primary outcome measures reflecting inflammatory and extracellular matrix remodeling responses following hepatic ischemia - reperfusion injury.

949. **Effect Of Perioperative Ultrasound-guided Remote Ischemic Conditioning On Myocardial Injury In Acute Myocardial Infarction Patients Undergoing Percutaneous Coronary Intervention: A Prospective Cohort**. *Xiao Lu, M.D.* [Clinical Trials] clinicaltrials.gov.

46 Timely reperfusion therapy may halt the progress of necrosis and preserve viable tissue; however, it can also induce myocardial injury and cause cardiomyocyte death, a phenomenon called myocardial ischemia reperfusion injury (IRI), which can increase final myocardial infarct size by up to 50%.

950. **Translating Genomic Tools To Raman Spectroscopy Analysis Ena....** *nature.com.* [Trusted Publisher] nature.com.

1 To establish our Raman "spectromics" approach we employed two widely used and robust mouse models in cardiovascular research: a) acute injury: myocardial ischemia/reperfusion injury (MI) by transient ligation of the left anterior descending artery (LAD) as described previously16 and b) chronic injury: continuous infusion of Angiotensin II in atherosclerosis-prone apolipoprotein E (ApoE)-deficient mice, leading to cardiac hypertrophy and fibrosis17 (Methods).

952. **Evidence And Perspectives On Mirna, Circrna, And Lncrna In Myocardial Ischemia-reperfusion Injury: A Bibliometric Study**. *Xiaowen Bo.* [Scholar] doi.org.

61 Besides several non-coding RNAs (miR-432, miR-320, lncRNA GAS5, miR-22) related to myocardial ischemia/reperfusion injury, "pro-apoptotic gene", "remote ischemic conditioning", and "cardiomyocyte ferroptosis" may also be research hotspots in this field.

953. **Extracellular Vesicle-derived Mirnas In Ischemic Stroke: Roles In Neuroprotection, Tissue Regeneration, And Biomarker Potential**. *Ceren Eyileten.* [Scholar] doi.org.

62 BMSC-derived EVs that have been shown to be protective in myocardial ischemia/reperfusion injury (Chen et al. 2020) were previously reported as differentially expressed in patients with IS, and may be a neuroprotective factor (Jia et al. 2015; Shan et al. 2021).

954. **Impact Of Peripheral Conditioning On Reperfusion Injury Following Primary Percutaneous Coronary Intervention In Diabetic And Non-diabetic Stemi Patients**. *Veljko Andric*. [Scholar] doi.org.

63 Peripheral conditioning induces transient ischemia, promoting antioxidant production in ischemia-affected tissues, which helps reduce heart reperfusion injury in ST-elevation myocardial infarction (STEMI) patients. This study compares troponin and creatine kinase-MB (CK-MB) levels among STEMI patients with and without remote conditioning.

957. **Regulating The Expression Of Exercise-induced Micro-rnas And Long Non-coding Rnas: Implications For Controlling Cardiovascular Diseases And Heart Failure**. *Guobiao Yang*. [Scholar] doi.org.

64 Exercise-induced miRNAs and lncRNAs are crucial in the progression of various cardiovascular diseases, including hypertension, dilated cardiomyopathy, atherosclerotic vascular diseases, myocardial ischemia-reperfusion injury, myocardial infarction, heart failure, and doxorubicin-induced cardiomyopathy.

958. **Remote Ischemic Conditioning In St-segment Elevation Myocardial Infarction - An Update**. *Jun Chong*. [Scholar] pubmed.ncbi.nlm.nih.gov.

11 As such, novel strategies are required to protect the heart against the detrimental effects of acute ischemia/reperfusion injury (IRI), in order to reduce myocardial infarct (MI) size and prevent the onset of HF.

962. **- School Of Bioengineering,tianjin University Of Scie...**. *aminer.cn*. [Prevalent Website] aminer.cn.

1 Exosomal HSP90 induced by remote ischemic preconditioning alleviates myocardial ischemia/reperfusion injury by inhibiting complement activation and inflammation

965. **Pretreatment With Remote Ischemic Conditioning Attenuates Testicular Damage After Testicular Ischemia And Reperfusion Injury In Rats**. *Jiaxue Li*. [Scholar] doi.org.

65 Although remote ischemic preconditioning (RIPC) has been convincingly shown to protect organs against ischemia/reperfusion (I/R) injury, little is known regarding the effect of RIPC on testicular torsion/detorsion-induced reperfusion injury.

966. **Conditioning Strategies Limit Cellular Injury? () J. G. King...**. *scirp.org*. [Niche News] scirp.org.

1 32) Konstantinov, I.E., Li, J., Cheung, M.M., Shimizu, M., Stokoe, J., Kharbanda, R.K. and Redington, A.N. (2005) Remote Ischemic Preconditioning of the Recipient Reduces Myocardial Ischemia-Reperfusion Injury of the Denervated Donor Heart via a Katp Channel-Dependent Mechanism.

967. **Rat Il-1 Beta Elisa Kit- Cusabio Rat Interleukin 1,il-1 ...**. *cusabio.com*. [Prevalent Website] cusabio.com.

1 Exosomal HSP90 induced by remote ischemic preconditioning alleviates myocardial ischemia/reperfusion injury by inhibiting complement activation and inflammation XF Cheng,BMC cardiovascular disorders,2023

968. **Increased Serum Calpain Activity Is Associated With Hmgb1 Le...**. *researchsquare.com*. [Popular Website] researchsquare.com.

3 Remote Ischemic Preconditioning and Diazoxide Protect from Hepatic Ischemic Reperfusion Injury by Inhibiting HMGB1-Induced TLR4/MyD88/NF-kappaB Signaling.

970. **Remote Ischemic Preconditioning Reduces Mitochondrial Apoptosis Mediated By Calpain 1 Activation In Myocardial Ischemia-reperfusion Injury Through Calcium Channel Subunit Cacna2d3**. *Guoyang Liu*. [Scholar] pubmed.ncbi.nlm.nih.gov.

12 Remote Ischemic Preconditioning (RIPC) can reduce myocardial ischemia-reperfusion injury, but its mechanism is not clear.

971. **Association Between Ranolazine, Ischemic Preconditioning, And Cardioprotection In Patients Undergoing Scheduled Percutaneous Coronary Intervention**. *Konstantinos Kourtis*. [Scholar] doi.org.

66 Background and Objectives: Remote ischemic preconditioning (RIPC) has demonstrated efficacy in protecting against myocardial ischemia - reperfusion injury when applied before percutaneous coronary revascularization.

986. **The Effect Of Remote Ischemic Preconditioning On The Postoperative Liver Function In Living Donor Hepatectomy: A Randomized Clinical Trial**. *Jun-Gol Song, Ph.D.* [Clinical Trials] clinicaltrials.gov.

47 Remote ischemic preconditioning is a novel and simple therapeutic method to lessen the harmful effects of ischemia-reperfusion injury, however, the majority of remote ischemic preconditioning studies on hepatic ischemia-reperfusion injury have been animal studies.

988. **The Effect Of Remote Ischemic Preconditioning On Ischemia/reperfusion Injury In A Liver Transplant Recipient (trsplnt) - A Randomized, Controlled, Double-blinded Clinical Trial**. *Waqas Farooqui, MD*. [Clinical Trials] clinicaltrials.gov.

48 Remote ischemic preconditioning, a safe and feasible method, has previously been shown to reduce ischemia and reperfusion injury.

998. **Overview Of Experimental And Clinical Findings Regarding The....** *hindawi.com.* [Trusted Publisher] hindawi.com.

7 He et al., "Remote ischemic postconditioning protects the brain from global cerebral ischemia/reperfusion injury by up-regulating endothelial nitric oxide synthase through the PI3K/Akt pathway," Brain Research, vol. 1445, pp. 92 - 102, 2012.

1032. **Method For Measuring Water Exchange Across The Blood-brain Barrier Using Mri | University Of Southern California**. *UNIVERSITY OF SOUTHERN CALIFORNIA.* [Patents] patents.google.com.

7 The present observation of increased kw in subjects with diabetes and hypercholesterolemia and total vascular risk factors is consistent with existing literature, suggesting that kw may provide a surrogate imaging biomarker of cerebral effects of common vascular risk factors and early SVD and/or AD.

1037. **Remote Ischemic Conditioning With Novel Optical Sensor Feedback Device In Acute Ischemic Stroke**. *Mahesh Kate.* [Clinical Trials] clinicaltrials.gov.

49 Current standard of care focuses on control of vascular risk factors including hypertension, diabetes, dyslipidemia, smoking, physical activity and mental health concerns to reduce the impact of WMH on stroke outcomes.

1049. **The Impact Of Repeated Bilateral Limb Remote Ischemic Conditioning On Patients With Chronic Cerebral Ischemia: Establishment Of Optimized Algorithm On The Basis Of Feasibility, Safety And Efficacy**. *Xuming Ji, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

50 This prospective, randomized, single-center clinical trial is designed to figure out the most optimal algorithm of remote ischemic conditioning on patients with chronic cerebral ischemia.

1056. **Usf Study: Blood-brain Barrier Repair After Stroke May Preve....** *research.usf.edu.* [Credible Web Content] research.usf.edu.

1 The pathologic processes of stroke-induced vascular injury tend to occur in a "time-dependent manner," and can be separated into acute (minutes to hours), subacute (hours to days), and chronic (days to months).

1058. **Gitex Digi_health 5.0 Dubai Showcases The Future Of Ai-driven Innovations Global Security Mag Online**. *globalsecuritymag.fr.* [Niche News] globalsecuritymag.fr.

1 In his presentation, he discussed the Golden Bridge II trial, which showed that the use of an AI-based clinical decision support system had a significantly greater impact on the number of vascular events and stroke care quality than standard care in patients with acute ischemic stroke (AIS).

1059. **Beyond Pharmacology: The Biological Mechanisms Of Remote Ischemic Conditioning In Cerebrovascular Disease**. *Linhui Qin.* [Scholar] doi.org.

67 Remote ischemic conditioning (RIC) exhibits anti-inflammatory effects, which are crucial in the context of stroke-induced inflammation.

1080. **Extracellular Vesicles Derived From Schwann Cells To Enhance Bone And Dental Tissue Regeneration: A Literature Review**. *Xinyi Li.* [Scholar] doi.org.

68 Another study demonstrates that DPSCs-derived EVs alleviate cerebral ischaemia-reperfusion injury by targeting the HMGB1-mediated neuroinflammatory pathway, providing a novel strategy for cell-free therapy in the treatment of ischaemic stroke (21).

1083. **Manager Of Finance - Blacksburg - Modea | Blacksburg, Va 24....** *theladders.com.* [Niche News] theladders.com.

1 The company's pipeline also includes candidates for cancer immunotherapy using OX40 ligand, interleukin 23, IL36G, and interleukin 12 as well as, in partnership with AstraZeneca, a regenerative medicine treatment that encodes vascular endothelial growth factor A to stimulate blood vessel growth for patients with myocardial ischemia.

1084. **Abstractintroductiondiscussionconclusionabbreviationsconflic....** *hindawi.com.* [Trusted Publisher] hindawi.com.

8 In a sepsis-induced ALI model, resveratrol can suppress the production of proinflammatory cytokines and the apoptosis of alveolar macrophages through the activation of the vascular endothelial growth factor-B (VEGF-B) pathway, thereby exhibiting anti-inflammatory and antiapoptotic effects (77).

1087. **Philip Ursell | Ursell, Philip Philip Ursell, Md 513 Parnas....** *profiles.ucsf.edu.* [Credible Web Content] profiles.ucsf.edu.

1 Adeno-associated viral vector-encoding vascular endothelial growth factor gene: effect on cardiovascular MR perfusion and infarct resorption measurements in swine.

1121. **The Renal Protective Effects Of Remote Ischemic Preconditioning In Patients With Chronic Kidney Disease: Randomized, Parallel-controlled, Proof-of Concept Trial**. *Guangyan Cai.* [Clinical Trials] clinicaltrials.gov.

51 Exclusion Criteria: 1. Patients with nephrotic syndrome 2. Patients with acute kidney injury 3. Patients who have undergone renal replacement treatment in the past 4. Patients who may have medication changes during RIC or sham-RIC intervention 5. Patients with a history of diabetes or glycated hemoglobin > 8% 6. Patients with familial hypercholesterolemia (>5.5 mmol/L) acc

1122. **Safety And Efficacy Of Remote Ischemic Conditioning In Patients With Spontaneous Intracerebral Hemorrhage**. *Yi Yang, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

52 7. Concurrent use of glibenclamide or nicorandil 8. Any soft tissue, orthopedic, or vascular injury, wounds or fractures in healthy upper limb which may pose a contraindication for application of RIC 9. Severe hepatic and renal dysfunction 10.

1124. **Releasable Portable Imaging Device For Multispectral Mobile Tissue Assessment Via Determining Driving Intensity Correction For Leds | Mimosa Diagnostics Inc**. *MIMOSA Diagnostics Inc.* [Patents] patents.google.com.

8 For example, the portable multispectral imaging device may be used to investigate and monitor non-wounded tissue for pressure injury formation and for imaging tissue regions prior to and following vascular interventions.

1125. **Perfusion Angiography Combined With Photoplethysmography Imaging For Peripheral Vascular Disease Assessment | Koninklijjke Philips N.v**. *KONINKLIJJKE PHILIPS N.V.* [Patents] patents.google.com.

9 A more complete study relying on the total perfusion properties of the perfused tissue of the peripheral organ would allow for a more accurate assessment of vascular diseases as well as for the elaboration of more effective treatment plans and their monitoring.

1126. **Remote Ischaemic Preconditioning For Heart Surgery (ripheart....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

53 Effect of remote ischaemic preconditioning on clinical outcomes in patients undergoing cardiac bypass surgery: a randomised controlled clinical trial.

1128. **Remote Ischemic Preconditioning Prior To Vascular Surgery - ....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

54 Cardiac Remote Ischemic Preconditioning Prior to Elective Vascular Surgery (CRIPES): A Prospective, Randomized, Sham-Controlled Phase II Clinical Trial.

1133. **Ischaemic Preconditioning In Non Cardiac Surgery**. *Alberto Zangrillo, Prof.* [Clinical Trials] clinicaltrials.gov.

55 The investigators study wants to test, for the first time, the hypothesis that remote ischaemic preconditioning is effective in reducing cardiac damage in high risk patients undergoing non-cardiac surgery.

1139. **10: Principles And Techniques For Reconstructive Surgery Pri....** *veteriankey.com.* [Prevalent Website] veteriankey.com.

1 Delay either conditions the flap to ischemia, allowing it to survive on less blood flow than is normally needed, or more likely, delay improves vascularity of the flap, perhaps by causing an increase in expression of cytokines that stimulate growth of vascular endothelium.

1141. **Acute Ischemic Stroke Diagnosis Market Poised To Reach $3.6 Billion By 2033**. *menafn.com.* [Niche News] menafn.com.

1 Emerging technologies, such as advanced CT angiography and perfusion imaging, further enhance the utility of CT scans in stroke diagnosis by providing detailed insights into blood flow and vascular conditions.

1205. **Safety And Efficacy Of Remote Ischemic Conditioning Combined With Endovascular Stenting In Patients With Symptomatic Intracranial Atherosclerotic Stenosis**. *Ming Wei, PhD.* [Clinical Trials] clinicaltrials.gov.

56 Intervention: Remote ischaemic conditioning (RIC) refers to a process whereby periods of intermittent ischemia, typically via the cyclical application of a blood pressure cuff to a limb at above systolic pressure, confers systemic protection against ischemia in spatially distinct vascular territories.

1207. **The Effect Of Chronic Remote Ischaemic Preconditioning On Blood Pressure In Older Adults**. *classic.clinicaltrials.gov.* [Clinical Trials] classic.clinicaltrials.gov.

1 The Effect of Chronic Remote Ischaemic Preconditioning on Blood Pressure in Older Adults

1216. **Repetitive Remote Ischemic Preconditioning As A Potential Alternative Intervention To Attenuate Arterial Stiffness In Individuals With Elevated Blood Pressure**. *Money Ghimire.* [Scholar] pubmed.ncbi.nlm.nih.gov.

13 Remote ischemic preconditioning (RIPC) involves three or four cycles of limb blood flow blockage followed by reperfusion with occlusion pressure between 200 and 220 mmHg and has been shown to improve vascular function.

1224. **Protective Effects Of Limb Remote Ischemic Per-conditioning On The Heart Injury Induced By Renal Ischemic-reperfusion Through The Interaction Of The Apelin With The Ras/inos Pathway**. *Sahar Janfeshan.* [Scholar] doi.org.

69 Introduction: Remote ischemic conditioning upregulates endogenous protective pathways in response to ischemia-reperfusion injury. This study tested the hypothesis that limb remote ischemic per- conditioning (RIPerC) exerts cardioprotective effects via the renin-angiotensin system (RAS)/inducible nitric oxide synthase (iNOS)/apelin pathway.

1225. **Role Of Remote Ischaemic Conditioning In Fracture Healing And Orthopaedic Surgery - A Systematic Review And Narrative Synthesis**. *Alison Buck*. [Scholar] doi.org.

70 Remote ischaemic conditioning (RIC) involves the use of controlled and transient ischemia and reperfusion cycles, commonly of the upper or lower limb, to mitigate cellular damage from ischaemic events.

1226. **The Impact Of Repeated Bilateral Limb Remote Ischemic Conditioning On Patients With Chronic Cerebral Ischemia: Establishment Of Optimized Algorithm On The Basis Of Feasibility, Safety And Efficacy**. *Xuming Ji, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

57 Contraindications for remote ischemic conditioning: significant peripheral arterial disease, soft tissue or vascular injury, wounds, and fracture affecting the upper limbs.

1227. **Remote Ischemic Conditioning Paired With Endovascular Treatm....** *clinicaltrials.gov*. [Clinical Trials] clinicaltrials.gov.

5 Contraindication for remote ischemic conditioning: severe soft tissue injury, fracture, or peripheral vascular disease in the upper limbs;

1228. **Rrh: Rural And Remote Health Article: 1505 - Type 2 Diabetes....** *rrh.org.au*. [Prevalent Website] rrh.org.au.

1 Hypertension increases the likelihood of ischemic heart disease and other disorders, such as visual, peripheral and cerebral vascular function.

1229. **Effects Of Remote Ischemic Postconditioning On The Pro-inflammatory Neutrophils Of Peripheral Blood In Acute Cerebral Infarction**. *Zhen Liang*. [Scholar] doi.org.

71 Objective: We aimed to explore the correlation between disease severity and peripheral blood neutrophils in patients with ACI and determine whether remote ischemic postconditioning (RIPostC) exerts neuroprotective effects by regulating neutrophils.

1233. **The Protective Effect Of Remote Ischemic Conditioning On Residual Renal Function In Hemodialysis Patients: A Multicenter, Randomized, Double-blind, Sham-controlled Trial**. *Guangyan Cai*. [Clinical Trials] clinicaltrials.gov.

58 Exclusion Criteria: - Active infection; - Infectious disease; - Expected dialysis duration < 6 months; - Presence of vascular access dysfunction (blood flow rate < 180ml/min); - Patients who had contraindication of remote ischemic conditioning, such as severe soft tissue injury, fracture or vascular injury in the upper extremities, venous thrombosis in the acute or subacute stage of upper extremities; - Pregnancy or lactation women; - Patients who are participating in other clinical studies, or

1234. **Application Of Perioperative Remote Ischemic Conditioning In Patients Undergoing Hepatectomy**. *He Huang, ph.D.* [Clinical Trials] clinicaltrials.gov.

59 Exclusion Criteria: - Patients with limb deformity or peripheral vascular disease affecting upper limb function - Patients with a medical history of nervous system, immune system and mental illness - Patients who have received hepatectomy in the past, have important organ diseases or have undergone surgical treatment recently - Patients who have recently used anti-inflamma

1240. **The Arnold Relman Challenge: Us Healthcare Costs Vs Us Healt....** *pharmaceuticalintelligence.com*. [Niche News] pharmaceuticalintelligence.com.

1 The examples of inflammatory disorders include Acne vulgaris, asthma, autoimmune disorders, celiac disease, chronic prostatitis, glomerulonepritis, hypersensitivities, inflammatory bowel diseases, pelvic inflammatory diseases, reperfusion diseases, rheumatoid arthritis, sarcoidosis, transplant rejection, vasculitis, interstitial cyctitis, The second kind of inflammation are related to non-immune diseases such as cancer, atherosclerosis, and ischaemic heart disease.

1241. **Nitric Oxide News And Latest Updates News Tagged With Nitric....** *phys.org*. [Global News] phys.org.

1 However sustained levels of NO production result in direct tissue toxicity and contribute to the vascular collapse associated with septic shock, whereas chronic expression of NO is associated with various carcinomas and inflammatory conditions including juvenile diabetes, multiple sclerosis, arthritis and ulcerative colitis.

1243. **Importance Of Measuring The Time Course Of Flow-mediated Dil....** *ahajournals.org*. [Niche News] ahajournals.org.

2 Irace C, De Luca S, Shehaj E, Carallo C, Loprete A, Scavelli F and Gnasso A (2012) Exenatide improves endothelial function assessed by flow mediated dilation technique in subjects with type 2 diabetes: Results from an observational research, Diabetes and Vascular Disease Research, 10.1177/1479164112449562, 10:1, (72-77), Online publication date: 1-Jan-2013.

1276. **Diagnostic And Prognostic Roles Of Endothelialand Platelet-derived Extracellular Vesicles In Cardiovascular Diseases**. *Riccardo Di Febo*. [Scholar] doi.org.

72 Many molecular pathways activated by endothelial and platelet-derived EVs in cardiovascular diseases are related to inflammation, endothelial activation, apoptosis, and fibrosis (136).

1305. **Astrocyte-derived Extracellular Vesicles For Ischemic Stroke: Therapeutic Potential And Prospective**. *Xianghui Wang*. [Scholar] doi.org.

73 Through this specific molecular pathway, ADEVs exhibited therapeutic effects on BIR rats, evident in the inhibition of proinflammatory factors in brain tissue and the improvement of neural function (173).

1306. **Transcriptomic Analysis Of The Effect Of Remote Ischaemic Conditioning In An Animal Model Of Necrotising Enterocolitis**. *Ian Howard Jones*. [Scholar] doi.org.

74 Four way comparison of gene expression of specific markers: a) Cell type markers; b) Molecular pathways: Hypoxia, cell toxicity and cell repair c) Molecular pathways known to be involved in NEC pathophysiology and d) Molecules that form the RISK pathway in cardiac ischaemic conditioning.

1307. **Emerging Opportunities To Target Inflammation: Myocardial Infarction And Type 2 Diabetes**. *Tafadzwa T J Kufazvinei*. [Scholar] doi.org.

75 130 Functionally relevant information on specific molecular pathway activation, stage of involvement of complementary (or competing) cell types, status of acute inflammation vs. resolution, and even the precise loci of inflammation are currently not well-defined in MI.

1335. **Heart Conditioning As A Healthy Strategy In Management Of Cardiac Enlargement**. *David Wing-Ching Lee*. [Scholar] doi.org.

76 Remote ischemic conditioning (RIC) is widely recognized for its cardioprotective effects in the context of ischemic heart disease.

1340. **Methods For Detecting Heart Rate, Respiration, And Oxygen Saturation And Uses Thereof | Purdue Research Foundation**. *Purdue Research Foundation*. [Patents] patents.google.com.

10 Additionally, a wearable device may also find uses in remote monitoring and diagnosis of patients' health conditions.

1341. **How Artificial Intelligence Can Help Health Plans Manage Chr....** *managedhealthcareexecutive.com*. [Niche News] managedhealthcareexecutive.com.

1 The industry now has the ability to pull a vast array of real-time patient data from so many sources-not just from claims data and electronic health records, but from remote monitoring technology (devices that are wearable or implantable, or can be used in the home), such as blood pressure readings for heart failure patients and blood sugar tests for diabetics.

1352. **Cardiovascular Devices Market Overview: Growth Drivers And Competitive Landscape | Exactitude Consultancy**. *menafn.com*. [Niche News] menafn.com.

2 Similarly, in February 2021, Remo Care Solutions introduced an AI-powered remote cardiac monitoring device, Remo.Cardia, which analyzes patients' vitals in real-time, offering effective monitoring for individuals with cardiovascular conditions.

1366. **Novel Intracellular Molecules And Organelles Are Discovered ....** *profiles.stanford.edu*. [Credible Web Content] profiles.stanford.edu.

2 This study aimed to quantify myocardial viability based on manganese uptake by viable myocardium in the infarct core (IC), peri-infarct region (PIR) and remote myocardium (RM) using T1 mapping before and after MEMRI and assess their association with cardiac function and arrhythmogenesis.

1368. **Lasso Filter Tipped Microcatheter For Simultaneous Rotating Separator, Irrigator For Thrombectomy And Method For Use**. *Daniel Ezra Walzman*. [Patents] ppubs.uspto.gov.

8 Fibrinolytic agents can be used to treat several types of vascular obstruction conditions such as acute myocardial infarction, pulmonary embolism, deep vein thrombosis, acute ischemic stroke, and peripheral arterial disease.

1369. **Identification Of Key Genes Associated With Cellular Aging And Mitochondria In Acute Myocardial Infarction**. *Dehong Chen*. [Scholar] doi.org.

77 This study focuses on cellular senescence and mitochondria-related genes in acute myocardial infarction (AMI), but fails to distinguish the differences among the infarct area, the border zone, and the remote area.

1377. **Ischemic Conditioning In Stemi Patients - Full Text View - C....** *clinicaltrials.gov*. [Clinical Trials] clinicaltrials.gov.

60 Remote ischaemic conditioning before hospital admission, as a complement to angioplasty, and effect on myocardial salvage in patients with acute myocardial infarction: a randomised trial.

1423. **Remote Ischemic Conditioning Attenuates Oxidative Stress And Inflammation Via The Nrf2/ho-1 Pathway In Mcao Mice**. *Ying-Ying Sun*. [Scholar] doi.org.

78 Remote ischemic conditioning (RIC) is a remote, transient, and non-lethal limb ischemia treatment that has been proven to be safe and efficacious in clinical trials (6,7).

1425. **Current Modalities And Mechanisms Underlying Cardioprotectio....** *experts.nebraska.edu.* [Credible Web Content] experts.nebraska.edu.

1 Remote ischemic preconditioning achieves a cardioprotective effect by applying cycles of ischemia and reperfusion in a distal limb, stimulating the release of a neurohumoral cardioprotective factor incited by stimulation of afferent neurons.

1432. **Blood Markers In Remote Ischaemic Conditioning For Acute Ischaemic Stroke: Data From The Remote Ischaemic Conditioning After Stroke Trial**. *Jason P Appleton.* [Scholar] pubmed.ncbi.nlm.nih.gov.

14 The effect of RIC on plasma biomarkers was assessed using clinical data from the REmote ischaemic Conditioning After Stroke Trial (RECAST-1).

1434. **Remote Ischemic Conditioning May Aid Recovery After Stroke 1....** *newswise.com.* [Global News] newswise.com.

1 From the authors: "Because poor cardiovascular health puts stroke survivors at a heightened risk for recurrent stroke and other cardiovascular events, an intervention that is simple, cost-effective and easy to perform like (remote ischemic conditioning) holds promise as a means to improve cardiovascular health in this at-risk population."

1435. **Esoc 2019 Facilitates Scientific Exchange And Advancements I....** *eso-stroke.org.* [Prevalent Website] eso-stroke.org.

1 RESCUE BRAIN demonstrated no significant change in lesion volume within 24 hours of acute stroke in patients with remote ischaemic conditioning compared to patients without, although the intervention was safe.

1440. **Usf Study: Blood-brain Barrier Repair After Stroke May Preve....** *research.usf.edu.* [Credible Web Content] research.usf.edu.

2 "Following ischemic stroke, the pathological changes in remote areas of the brain likely contribute to chronic deficits," said neuroscientist and study lead author Svitlana Garbuzova-Davis, PhD, associate professor in the USF Health Department of Neurosurgery and Brain Repair. "

1442. **Neutrophil-to-lymphocyte Ratio, Platelet-to-lymphocyte Ratio, Systemic Immune Inflammation Index And Efficacy Of Remote Ischemic Conditioning In Acute Ischemic Stroke: A Post Hoc Exploratory Analysis**. *Qi Wang.* [Scholar] doi.org.

79 We conducted a post-hoc analysis of the RICAMIS trial to investigate the effect of neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), and systemic immune inflammation index (SII) on the efficacy of remote ischemic conditioning treatment.

1443. **Remote Ischemic Conditioning With Novel Optical Sensor Feedback Device In Acute Ischemic Stroke**. *Mahesh Kate.* [Clinical Trials] clinicaltrials.gov.

61 1. Hypothesis In patients with ischemic stroke and small vessel disease, Remote Ischemic Conditioning (RIC) delivered by novel device with optical feedback sensor will be safe and feasible.

1445. **Remote Ischemic Conditioning For The Prevention Of Contrast-....** *oncotarget.com.* [Prevalent Website] oncotarget.com.

1 Remote ischemic conditioning for the prevention of contrast-induced acute kidney injury in patients undergoing intravascular contrast administration: a... |

1461. **Caveolin-3: Therapeutic Target For Diabetic Myocardial Ischemia/reperfusion Injury**. *Xinyu Wen.* [Scholar] doi.org.

80 Ischemic conditioning, including ischemic preconditioning, ischemic postconditioning and remote ischemic conditioning, is considered as a typical and effective treatment against I/R injury in animal experiments, and has entered clinical translation (Bell et al. 2016; Hausenloy et al. 2017; Kan et al. 2023).

1475. **Defining The Future Of Inflammatory Bowel Disease Care: The ....** *emjreviews.com.* [Niche News] emjreviews.com.

1 Furthermore, IBD also conveys an increased risk of venous thromboembolism and arterial disease including ischaemic heart disease, cerebral vascular disease, and peripheral

1478. **1 To 100 Of 236 "v" Titles Vaccination Of Immunosuppressed C....** *lane.stanford.edu.* [Credible Web Content] lane.stanford.edu.

1 ::Summary## A vital text for every aspiring and practicing clinician in relevant fields, this user-friendly guide to valvular heart disease includes diagnostic tables, guidance on the treatment of a range of conditions, and access to a range of additional video material.

1482. **Covid-19 Pandemic In England**. [Wiki] en.wikipedia.org.

4 Statistics for deaths in hospital up to 30 December 2020 showed that those with a pre-existing condition - especially diabetes, chromic kidney disease, dementia or ischaemic heart disease but also asthma, chronic neurological or pulmonary disease - were around twenty-three times more likely to die than those who did not have one.

1508. **Automated Camera-based Non-invasive Monitoring For Spontaneous Breathing And Awakening Trials In Intensive Care | Koninklijke Philips N.v**. *Daniel Jason Schulman.* [Patents] ppubs.uspto.gov.

9 In an embodiment where imagery is to be transmitted to a remote device, the imagery may be de-identified or anonymized prior to transmission or communication outside of a local system.

1514. **Remote Access For Ambulatory Medical Device | Zoll Medical Corporation**. *ZOLL Medical Corporation.* [Patents] ppubs.uspto.gov.

10 The remote access manager may be further configured to detect an anomalous condition of the controller, and to transmit data representing an operational status of the ambulatory medical device to the remote system in response to detecting the anomalous condition.

1516. **Systems And Methods For Transdermally Detecting Tissue Ischemia And Evaluating Organ Function Using Serum Luminescence | University Of Macau**. *University of Macau.* [Patents] patents.google.com.

11 The disclosed methods may also be practiced in distributed system environments where local and/or remote computing systems, which are linked through a network (either by hardwired data links, wireless data links, or by a combination of hardwired and wireless data links), both perform tasks.

1519. **System And Method For Assessment Of Neuro-inflammation Using Magnetic Resonance Imaging (mri) | Wisconsin Alumni Research Foundation**. *WISCONSIN ALUMNI RESEARCH FOUNDATION.* [Patents] patents.google.com.

12 The networked workstation , whether within the same facility or in a different facility as the operator workstation , may gain remote access to the data processing server or data store server via the communication system .

1546. **Method For Evaluating The Optical Loss Of A Mechanical Splice Joint Of Two Optical Fibers | Panduit Corp**. *Panduit Corp.* [Patents] patents.google.com.

13 The apparatus may also have provisions for communicating with other devices by means of a Bluetooth, Wi-Fi, or other wireless device , using wireless communication protocols for remote control and/or uploading connector installation data.

1547. **Prediction Of Quality Of Life In Patients With Traumatic Brain Injury | Regents Of The University Of Minnesota**. *Christopher Tignanelli.* [Patents] ppubs.uspto.gov.

11 Mobile device may then transmit the user data (including the plurality of patient parameters) to remote server .

1548. **Optical Communication Components : Hitachi High-tech Corpora....** *hitachi-hightech.com.* [Popular Website] hitachi-hightech.com.

1 Those offerings include devices such as switches, sensors, data communication modules, touch input panels, actuators and power inductors; electronic shifters, remote keyless entry systems and other automotive units; consumer electronics like car navigation and audio-visual systems; and systems and services such as digital keys based on smartphone app and blockchain technol

1549. **Use Of Blood Flow Images To Inform Scs Workflow | Boston Scientific Neuromodulation Corporation**. *Ismael Huertas Fernandez.* [Patents] ppubs.uspto.gov.

12 The method may include using the downloadable app to create and analyze the thermographic imaging comparison data from the digital image files, or using the downloadable app to send the digital image files to a cloud-based SCS suitability analyzer implemented by one or more remote processing systems.

1550. **Body Area Network**. [Wiki] en.wikipedia.org.

5 Further, the storage devices need to facilitate remote storage and viewing of patient data as well as access to external processing and analysis tools via the Internet .

1552. **Wearable Ultrasound Device And Harness For Immunomodulation, And Uses Thereof | Inia Biosciences, Inc**. *INIA Biosciences, Inc.* [Patents] ppubs.uspto.gov.

13 The communications module allows remote communication, either directly or via a cloud platform or other intermediary, with the subject's (e.g., patient's) physician, and may allow for remote adjustment of one or more parameters of the device, as discussed above.

1553. **Systems, Devices And Methods For Neurostimulation | Scion Neurostim, Inc**. *SCION NEUROSTIM, INC.* [Patents] patents.google.com.

14 For example, one or more portions of the data may be stored remote from the stimulation device , and the stimulation device may communicate with the remote storage, for example via I/O circuits .

1556. **Fast Identification Of Shockable Or Non-shockable Rhythms In Ecg Data | Zoll Medical Corporation**. *Naveed Zaidi.* [Patents] ppubs.uspto.gov.

14 The remote server may be located within a 24-hour manned monitoring center, where the data is interpreted by qualified, cardiac-trained reviewers and/or caregivers, and feedback provided to the patient and/or a designated caregiver via detailed periodic or event-triggered reports.

1557. **Fast Identification Of Shockable Or Non-shockable Rhythms In Ecg Data | Zoll Medical Corporation**. *Naveed Zaidi*. [Patents] ppubs.uspto.gov.

15 Pre-validating the conditions using one or more large databases of patient data can help in identifying accurate conditions that may be used with a high degree of confidence.

1558. **System For Variably Configurable, Adaptable Electrode Arrays And Effectuating Software | Stimscience Inc**. *Michael P. Weisend*. [Patents] ppubs.uspto.gov.

16 Hence, the controller may transmit data sensed from the electrodes as well as receive data from the remote device, e.g., computer, laptop, tablet, smartphone, etc., such as treatment parameters, power levels, stimulation waveforms, etc. Moreover, this communication may occur through various wireless protocols, e.g., internet, cellular, RF, etc. As the controller may be con

1560. **Medicine Park Telephone Co V State Ex Rel Oklahoma Corporation Comm**. [Legal] courtlistener.com.

1 Contributing provider" as that term is used in 139.107 means "providers, including but not limited to providers of intrastate telecommunications, providers of intrastate telecommunications for a fee on a non-common-carrier basis, providers of wireless telephone service and providers of interconnected Voice over Internet Protocol (VoIP).

1561. **A Biosensory Garment | Jj1 Holdings Pty Ltd**. *Jeanette Mary Jones*. [Patents] ppubs.uspto.gov.

17 The biosensory garment of claim 1 wherein the central processor transmits information from the sensors to the command computer over a wireless personal network area protocol and wherein the command computer can comprise a remote server or smart device including a mobile phone, personal digital assistant, laptop or tablet computer.

1562. **High-tech Surfboard And Its Oversight (over-sea-sight) Interconnected Network**. *Yossi ABUDY*. [Patents] ppubs.uspto.gov.

18 The board of claim 18, wherein said communication unit is configured to communicate used a protocol selected from a group consisting of Bluetooth, wireless, cellular.

1564. **Rfc 6988: Requirements For Energy Management Internet Engine....** *rfc-editor.org*. [Popular Website] rfc-editor.org.

1 The Simple Network Management Protocol (SNMP) (RFC3411) is an example of a protocol that can be used for realizing pull-based reporting of time series.

1565. **Rfc 7460: Monitoring And Control Mib For Power And Energy In....** *rfc-editor.org*. [Popular Website] rfc-editor.org.

2 Link with the LLDP and LLDP-MED MIBs The Link Layer Discovery Protocol (LLDP) is a Data Link Layer protocol used by network devices to advertise their identities, capabilities, and interconnections on a LAN network.

1566. **Entry Level Installation Technician Assistant Jobs In San Di....** *dice.com*. [Niche News] dice.com.

1 Network Operation Technician Remote Contract Scope of work: Support for SDWAN/Meraki/Sunbelt/MECM Customer (internal/external): All SDWAN Size of group this position will support: 9000+ Work environment/team culture: Work from home, Team focus Typical day: Working multiple tickets, while answering customer calls Candidate Details: 1) Top 3-5 skills/technologies and qualifications required: Network skills, Protocol knowledge, Technical Troubleshooting skills 2) Non-technical Skills are necessar

1611. **Validation Of A Case Definition To Define Hypertension Using....** *ahajournals.org*. [Niche News] ahajournals.org.

3 Hemmelgarn B, Smekal M, Weaver R, Thomas C, Benterud E, Tam K, Manns B, Tonelli M, Finlay J, Donald M, Tam-Tham H, Bello A, Tangri N and Quinn R (2018) Implementation and Evaluation of a Risk-Based Approach to Guide Chronic Kidney Disease Care: Protocol for a Multiphase Mixed-Methods Study, Canadian Journal of Kidney Health and Disease, 10.1177/2054358117753618, 5, (205435

1616. **Microarray Analysis For Transcriptomic Profiling Of Myocardium In Patients With Fatal Myocardial Infarction**. *Vyacheslav Ryabov*. [Scholar] doi.org.

81 In our work, we suggest a research protocol based on using myocardium samples from patients who died due to acute MI type 1. The purpose of our pilot study presented herein was to investigate the transcriptome profile of myocardium in the infarct zone, in comparison to remote myocardium, in patients with fatal MI, via microarray analysis.

1622. **A Meta-analysis Of Randomized Controlled Trials (rcts) Investigating The Efficacy And Safety Of Acupuncture In Treating Myocardial Ischemia/reperfusion (i/r) Injury**. *Jian Xiong*. [Scholar] doi.org.

82 Following title and abstract screening, exclusions included 391 animal studies, 179 unrelated to nonmyocardial I/R injury, 121 Cochrane Library registers, three study protocols, 57 nonacupuncture studies, 78 reviews, 15 case reports, 11 news reports, four announcements, one advertisement, 11 clinical study reports, and 29 clinical observations.

1638. **The Protective Effects Of Curcumin On Experimental Acute Liv....** *hindawi.com*. [Trusted Publisher] hindawi.com.

9 Male Sprague-Dawley rats weighing 190 - 220 g were obtained from the Animal Center of Dalian Medical University (Dalian, China; Institutional protocol number: SCXK 2008-0002) and the study was approved by the Institutional Ethics Committee.

1641. **Microrna - 132 Promotes Oxidative Stress - Induced Pyroptosi....** *spandidos-publications.com.* [Prevalent Website] spandidos-publications.com.

5 The study protocol was approved by the Institutional Animal Care Committee at Tongji Medical College of Huazhong University of Science and Technology (Hubei, China).

1643. **Impact Of Paired Remote Ischemic Preconditioning On Postreperfusion Syndrome In Living-donor Liver Transplantation: A Propensity-score Matching Analysis**. *Jaewon Huh.* [Scholar] doi.org.

83 The study protocol was approved by our Institutional Review Board and Ethics Committee (approval no.:

1644. **Predictors Of Atrial Fibrillation In Heart Failure Patients With Indications For Icd Implantation**. *Tariel Atabekov.* [Scholar] doi.org.

84 The study protocol received approval from the Local Ethics Committee of the Cardiology Research Institute under protocol number 219, dated 26 October 2021.

1662. **Automatic Detection Of 39 Fundus Diseases And Conditions In ....** *nature.com.* [Trusted Publisher] nature.com.

2 Image collection and the research protocol were in compliance with all relevant ethical regulations for studies involving human subjects and approved by the Human Ethics Committee of JSIEC, who also waived the informed consent from patients due to anonymity according to the Regulations for Ethical Review of Biomedical Research Involving Human of China.

1664. **Home > Academic Affairs > Surp > 2020 Posters And Presentati....** *digitalcommons.unmc.edu.* [Credible Web Content] digitalcommons.unmc.edu.

1 This poster reports on a systematic review of quantitative and qualitative research inclusive of telehealth survey instruments following PRISMA guidelines using a PROSPERO registered protocol .

1665. **Method And Apparatus For Cooperative Usage Of Multiple Distance Meters | May Patents Ltd**. *Yehuda BINDER.* [Patents] ppubs.uspto.gov.

19 The device according to claim 55, wherein the cellular telephone network is a Third Generation (3G) network that uses a protocol selected from the group consisting of UMTS W-CDMA, UMTS HSPA, UMTS TDD, CDMA2000 1 RTT, CDMA2000 EV-DO, and GSM EDGE-Evolution, or wherein the cellular telephone network uses a protocol selected from the group consisting of a Fourth Generation (4

1666. **What A Sham(e): Sham - Controlled Conditioned Pain Modulation Effects On Pressure But Not Heat Pain Thresholds In Healthy Volunteers**. *Madeleine Hau.* [Scholar] doi.org.

85 Following the standardised instructions of the QST protocol according to the German Research Network on Neuropathic Pain (Rolke et al. 2006), participants were instructed to press a button as soon as they perceived an additional sensation to heat.

1671. **Beyond Pharmacology: The Biological Mechanisms Of Remote Ischemic Conditioning In Cerebrovascular Disease**. *Linhui Qin.* [Scholar] doi.org.

86 Cerebrovascular diseases (CVDs), comprising predominantly ischemic stroke and chronic cerebral hypoperfusion (CCH), are a significant threat to global health, often leading to disability and mortality. Remote ischemic conditioning (RIC) has emerged as a promising, non-pharmacological strategy to combat CVDs by leveraging the body's innate defense mechanisms. This review delves into the neuroprotective mechanisms of RIC, categorizing its effects during the acute and chronic phases of stroke recov

1681. **Human Peripheral Blood - Derived Exosomes For Microrna Deliv....** *spandidos-publications.com.* [Prevalent Website] spandidos-publications.com.

6 Exosomes were isolated from human peripheral blood using the Exoquick exosome precipitation kit (System Biosciences, Palo Alto, CA, USA) according to the manufacturer's protocol.

1746. **Mobile Technology**. [Wiki] en.wikipedia.org.

6 # mobile phone service based on cellular phones, SMS (Short Message Service), WAP (Wireless Application Protocol), GPRS (General Packet Radio Service), UMTS (3G, 3rd Generation Mobile Communication Network)

1751. **Proteomic Analysis Identifies Plasma Correlates Of Remote Is....** *nature.com.* [Trusted Publisher] nature.com.

3 Having a better understanding of the proteome response to SCI in blood, will aid in the development of novel inteventions for SCI, as well as to identify candidate biomarkers that may have the potential to better determine SCI severity or predict clinical outcome of human with a SCI (4).

1764. **Predicting Onset And Progression Of Neurodegenerative Diseases Using Blood Test Data And Machine Learning Models | Mor Research Applications Ltd**. *Mor Research Applications Ltd.* [Patents] ppubs.uspto.gov.

20 The biomarker status of the target subject may be unknown at the when blood is withdrawn for testing since the biomarker status is not measured routinely and it may become positive a decade before the clinical disease.

1774. **Integrating Visual Assessments And Quantification Methods For Tau Pet Staging**. *Yuna Gu.* [Scholar] doi.org.

87 AD plasma biomarker levels including p - tau217 (A), GFAP (B), and NfL (C) by visual and ROI - based quantitative tau staging in K - ROAD (A1,B1,C1) and ADNI cohorts (A2,B2,C2).

1776. **Daily Remote Ischaemic Conditioning Following Acute Myocardi....** *clinicaltrials.gov.* [Clinical Trials] clinicaltrials.gov.

6 Mean blood biomarker levels of heart failure and ventricular remodelling at baseline and 4 months (Time Frame: Participants will be followed for a total of 4 months from date of MI to final outpatient follow-up at which point they will be discharged.

1779. **+1 415 502-3119 555 Mission Bay Blvd South, Rm 252g Ucsf Box....** *ucsfhealthcardiology.ucsf.edu.* [Credible Web Content] ucsfhealthcardiology.ucsf.edu.

1 Role of serum biomarkers in cancer patients receiving cardiotoxic cancer therapies: a position statement from the Cardio-Oncology Study Group of the Heart Failure Association and the Cardio-Oncology Council of the European Society of Cardiology.

1782. **Bmj 2020; 370 Doi: Https://doi.org/10.1136/bmj.m3026 (Publi....** *bmj.com.* [Niche News] bmj.com.

1 Elevated biomarkers may include C reactive protein (for example, acute infection), white cell count (infection or inflammatory response), natriuretic peptides (for example, heart failure), ferritin (inflammation and continuing prothrombotic state), troponin (acute coronary syndrome or myocarditis) and D-dimer (thromboembolic disease).

1783. **261 Articles Found Doi:10.20944/preprints202306.2009. Sex Di....** *preprints.org.* [Popular Website] preprints.org.

1 Extracellular miRNAs, in particular circulating EV-miRNAs, have shown promising potential as prognostic and diagnostic biomarkers for heart failure and as therapeutic targets.

1786. **Is Chronic Inflammation A Risk Factor For Perioperative Myocardial Injury Or Heart Failure In Pancreatic Surgery Patients?**. *Ted Reniers.* [Scholar] doi.org.

88 We hypothesised that preoperative interleukin 6 (IL-6) is associated with postoperative biomarker release indicative of myocardial injury and heart failure.

1788. **Assessment Of Myocardial Injuries In Ischaemic And Non-ischaemic Cardiomyopathies Using Magnetic Resonance T1-rho Mapping**. *Aurlien Bustin.* [Scholar] doi.org.

89 Myocardial T1 mapping appears to be reproducible and equally sensitive to acute and chronic myocardial injuries, whether of ischaemic or non-ischaemic origins. It may thus be a contrast-agent-free biomarker for gaining new and quantitative insight into myocardial structural disorders. These findings highlight the need for further studies through prospective and randomized trials.

1790. **Mir-1 Microrna Precursor Family**. [Wiki] en.wikipedia.org.

7 These micro RNAs have pivotal roles in development and physiology of muscle tissues including the heart. MiR-1 is known to play an important role in heart diseases such as hypertrophy, myocardial infarction, and arrhythmias. Studies have shown that MiR-1 is an important regulator of heart adaption after ischemia or ischaemic stress and it is upregulated in the remote myocardium of patients with myocardial infarction. Also MiR-1 is downregulated in myocardial infarcted tissue compared to healthy

1793. **Remote Ischemic Preconditioning Attenuates Mitochondrial Dysfunction And Ferroptosis Of Tubular Epithelial Cells By Inhibiting Nox4-ros Signaling In Acute Kidney Injury**. *Wei Wei.* [Scholar] doi.org.

90 NOX4 might be used as a biomarker for monitoring the biological effects of rIPC to optimize the rIPC protocol and facilitate future translational studies.

1809. **The Link Between Cardiovascular Disease And Exosomes | -- 4....** *encyclopedia.pub.* [Popular Website] encyclopedia.pub.

1 Zhang, T. Plasma Exosomal S1PR5 and CARNS1 as Potential Non-invasive Screening Biomarkers of Coronary Heart Disease.

1811. **Ai - Products, Competitors, Financials, Employees, Headquart....** *cbinsights.com.* [Niche News] cbinsights.com.

1 Clinical workflow to diagnose heart disease based on cardiac biomarker measurements and ai recognition of 2d and doppler modality echocardiogram images

1814. **Mobile Cardiac Monitoring Device | Vectracor, Inc**. *Vectracor, Inc.* [Patents] worldwide.espacenet.com.

2 The mobile cardiac monitoring device can communicate over a data network, such as a cellular network, to transmit an alert when a trigger condition is detected based on the dynamic cardiac electrical biomarker.

1815. **Circulating Levels Of Neurofilament Light Chain As A Biomarker Of Infarct And White Matter Hyperintensity Volumes After Ischemic Stroke**. *Lukas Holmegaard.* [Scholar] doi.org.

91 Serum neurofilament light chain protein (sNfL) shows promise as a biomarker for infarct size in acute ischemic stroke and for monitoring cerebral small vessel disease (cSVD).

1820. **Macrophage Mannose Receptor Cd206-targeted Pet Imaging In Experimental Acute Myocardial Infarction**. *Putri Andriana*. [Scholar] doi.org.

92 Al(18 F)F-NOTA-D10CM PET detects overexpression of CD206 after ischemic myocardial injury, and may be a suitable biomarker for detecting M2-type macrophages associated with the inflammatory process post-MI.

1829. **186 Articles Found Doi:10.20944/preprints202306.0764. Near-i....** *preprints.org*. [Popular Website] preprints.org.

2 In conclusion, our study showed the technical feasibility of EEG-fNIRS imaging, ARX modeling of NVC for HIE classification, and EMA that may provide a biomarker to detect sepsis effects on the NVC in HIE.

1843. **Cellaegis To Begin Noninvasive Autoric Device Pilot Trial In....** *medicaldevice-network.com*. [Niche News] medicaldevice-network.com.

1 Postoperative measurements including serum creatinine, eGFR, and serum NGAL (a renal injury biomarker) will be measured in all patients at 2, 6, and 24 hours intervals.

1844. **Compositions And Methods For Preventing Acute Kidney Injury-induced Acute Lung Injury (aki-ali) | Washington University**. *Washington University*. [Patents] ppubs.uspto.gov.

21 Serum OPN protein levels have been studied as a biomarker of severity of disease in patients with multiorgan failure, often including AKI and ALI.

1845. **Jianwei Pan - Publications 445 High-probability Publications....** *academictree.org*. [Popular Website] academictree.org.

1 Serum ST2 as a potential prognostic biomarker for traumatic brain injury.

1846. **Infrared Spectroscopic Devices And Methods Of Use For Transdermal Patient Assessment | Rce Technologies, Inc**. *RCE Technologies, Inc*. [Patents] patents.google.com.

15 establishing a baseline measurement for an inframarker based on the data from the predetermined number of optical scans, the inframarker being indicative of a single one or a combination of biomarkers representing a physiological state of the subject, including myocardial injury and/or myocardial stress;

1847. **Multidisciplinary Care Model As A Center Of Excellence For Fabry Disease: A Practical Guide To Diagnosis And Management By Clinical Specialty In South Korea**. *Soo Yong Lee*. [Scholar] doi.org.

93 Regular monitoring of renal biomarkers, including proteinuria, albuminuria, serum creatinine, and estimated glomerular filtration rate, can assist in evaluating disease progression and therapeutic response (Class II, Level of Evidence C).

1857. **Discover More Insights Into Epilepsy Research ....** *academic-accelerator.com*. [Popular Website] academic-accelerator.com.

1 Significance: Since PAC biomarkers are important for epilepsy research and postictal state duration has been linked with risk of sudden unexplained death in epilepsy, this model suggests glial synaptic effects as potential targets for further analysis and treatment.

1858. **High Speed Innovations In Photoacoustic Microscopy**. *Xiaoyi Zhu*. [Scholar] doi.org.

94 The PAM biomarkers correlated well with clinical scores, highlighting the potential of PAM to offer new insights into disease progression and treatment monitoring of inflammatory skin conditions.

1874. **Nerve Growth Factor In Pediatric Brain Injury: From Bench To Bedside**. *Lorenzo Di Sarno*. [Scholar] doi.org.

95 Future research endeavors should also prioritize the elucidation of the precise mechanisms underlying NGF's action within the injured human brain and the identification of potential biomarkers to predict therapeutic responsiveness.

1879. **Gregory W. Albers, Md's Profile | Director, Stanford Stroke....** *profiles.stanford.edu*. [Credible Web Content] profiles.stanford.edu.

3 Cortical venous outflow (VO) represents an imaging biomarker of increasing interest in patients with acute ischemic stroke due to large vessel occlusion (AIS-LVO).

1880. **Chronic Remote Ischemic Conditioning In Vascular Cognitive Impairment: A Dose Escalation Study**. *Carol Smith, RN*. [Clinical Trials] clinicaltrials.gov.

62 Aim: We aim to measure blood biomarkers in response to daily remote ischemic conditioning (RIC) using a dose escalation study design in 40 patients with age-related cerebral white matter hyperintensities on MRI.

1882. **Comparative Analysis Of The Abc/2 Score And E-aspects Software In The Determination Of Acute Ischaemic Stroke Volume From Non-contrast Ct**. *Jorin Bejleri*. [Scholar] doi.org.

96 The MiND study is an Irish-led study assessing the diagnostic and prognostic biomarkers of acute ischaemic stroke, recruiting acute stroke patients within 12 h from symptoms onset.

1883. **Behavior Of Complement System Effectors In Chronic And Acute Coronary Artery Disease**. *Roxana Mihaela Chiorescu*. [Scholar] doi.org.

97 The objective of this study was to evaluate the serum concentrations of sC5b-9, RGC-32, and SIRT1 histone deacetylase in patients with atherosclerotic ischemic coronary disease and to verify their reliability as serum biomarkers for acute or for chronic coronary syndromes.

1884. **The Effect Of Remote Postconditioning On Graft Function In Patients Undergoing Living-related Kidney Transplantation**. *Jong Hwan Lee, M.D.,Ph.D.* [Clinical Trials] clinicaltrials.gov.

63 Description: biomarkers of acute kidney injury: Plasma cystatin-C, Urine IL-18, Urine Neutrophil gelatinase-associated lipocalin (NGAL)

1885. **Full Text 1953 Views | ? Ischemic Process Causes A Lack Of O...**. *oncotarget.com*. [Prevalent Website] oncotarget.com.

2 Khadaroo RG, Fortis S, Salim SY, Streutker C, Churchill TA, Zhang H. I-FABP as biomarker for the early diagnosis of acute mesenteric ischemia and resultant lung injury.

1886. **William Brian Reeves - Publications - Scholars @ Ut Heal...**. *scholars.uthscsa.edu*. [Credible Web Content] scholars.uthscsa.edu.

1 Urine stability studies for novel biomarkers of acute kidney injury

1888. **Effect Of Remote Ischemic Preconditioning In Septic Patients On Cell Cycle Arrest Biomarkers - The Ripc-icu Randomized Clinical Trial**. *Melanie Meersch-Dini, MD*. [Clinical Trials] clinicaltrials.gov.

64 Acute kidney injury is a well-recognized complication in critically ill patients. Up to date there is no clinically established method to reduce the incidence or the severity of acute kidney injury. Remote ischemic preconditioning (RIPC) will be induced by three cycles of upper limb ischemia. The aim of the study is to reduce the incidence of AKI by implementing remote ischemic preconditioning (identified by the urinary biomarkers tissue inhibitor of metalloproteinases-2 (TIMP-2) and insulin-lik

1890. **Basilia Zingarelli, Md, Phd Director, Critical Care Basic Sc...**. *cincinnatichildrens.org*. [Niche News] cincinnatichildrens.org.

1 Candidate Biomarkers for Sepsis-Associated Acute Kidney Injury Mechanistic Studies.

1892. **Stroke Detecting: Portable Mris Almost As Effective As Stati...**. *healthcare-in-europe.com*. [Niche News] healthcare-in-europe.com.

1 White matter hyperintensities (WMH) on the brain seen on MRI represent a biomarker associated with a 50/50 risk of death within five years after a first incident acute ischemic stroke (AIS) or...

1896. **Mr Signal Abnormalities At 1.5 T In Alzheimer's Dementia And...**. *ajronline.org*. [Prevalent Website] ajronline.org.

2 Circulating lipocalin - 2 as a novel biomarker for early neurological deterioration and unfavorable prognosis after acute ischemic stroke

1898. **Renoprotective Effects Of Ripc Measured By Bold-mri After Pn**. *physiciansweekly.com*. [Niche News] physiciansweekly.com.

2 Urinary biomarker studies show Remote Ischemic PreConditioning (RIPC) offers renal protection in cardiothoracic and kidney-sparing surgery.

1900. **Screening Assays, Modulators And Modulation Of Activation Of Receptor For Advanced Glycation End-products (rage) | Monash University**. *Kevin Donald George PFLEGER*. [Patents] ppubs.uspto.gov.

22 RAGE expression is markedly upregulated in important inflammatory and metabolic disorders including but not limited to cardiovascular disease (CVD), cancer, diabetes, chronic kidney disease (CKD), ischaemic injury and Alzheimer's disease (Yan et al., 2010).

1902. **Prognostic Impact Of Incomplete Revascularization In Coronary Artery Bypass Grafting: Association Between Residual Syntax Score, Magnetic Resonance Imaging, Myocardial Injury, And Cardiovascular Event**. *Diogo Freitas Cardoso de Azevedo*. [Scholar] doi.org.

98 However, this biomarker, which is a clear indicator of myocardial strain stress, would provide interesting data in conjunction with the analysis of myocardial injury markers, such as hs-TnI and CK-MB, supported by current guidelines after myocardial revascularization procedures.(

1903. **Remote Ischaemic Pre-conditioning, Kidney Injury, And Outcomes After Coronary Angiography And Intervention: A Randomized Trial**. *Ping Jia*. [Scholar] pubmed.ncbi.nlm.nih.gov.

15 Secondary endpoints included renal replacement therapy during hospitalization, changes in urinary biomarkers of kidney injury, and occurrence of non-fatal myocardial infarction, stroke, re-hospitalization, and all-cause mortality by day 90.

1916. **Professor Nikki Robertson (mb Chb, Frcpch, Phd) | Professor....** *ed.ac.uk.* [Niche News] ed.ac.uk.

1 Development of a cot-side optical biomarker of brain tissue health following neonatal hypoxic-ischaemic brain injury.

1924. **C-type Lectins In Immunity And Homeostasis | C-type Lectins....** *nature.com.* [Trusted Publisher] nature.com.

4 Ishikawa, M. et al. Plasma sLOX-1 is a potent biomarker of clinical remission and disease activity in patients with seropositive RA.

1939. **Endotrophin Levels Are Associated With Allograft Outcomes In Kidney Transplant Recipients**. *Nadja Sparding.* [Scholar] doi.org.

99 To further evaluate the potential of ETP as a biomarker of poor outcomes in kidney transplantation we measured ETP in the plasma of 218 and urine of 172 kidney transplant recipients enrolled in the trial cohort "Remote Ischemic Conditioning in Renal Transplantation - Effect on Immediate and Extended Kidney Graft Function (CONTEXT)" (12) at different time points after transplantation.

1940. **A Phase 1/2a Exploratory Clinical Trial To Evaluate The Safety Of Oral Deferiprone (14 Days) Including Its Effect On Decreasing The Content Of Iron In Subjects With Aneurysmal Subarachnoid Hemorrhage**. *David Hasan, MD.* [Clinical Trials] clinicaltrials.gov.

65 This will make our proposal the first go/no-go randomized double-blind placebo vs. deferiprone trial that attempts to establish Ft (a reporter of total Fe in the brain and CSF) as a biomarker of neurocognitive decline specifically in subarachnoid hemorrhage subjects and test the effect of deferiprone in decreasing the levels of Ft and therefore ameliorate the neurocognitive decline associated with this disease.

1941. **A Phase 1/2a Exploratory Clinical Trial To Evaluate The Safety Of Oral Deferiprone (14 Days) Including Its Effect On Decreasing The Content Of Iron In Subjects With Aneurysmal Subarachnoid Hemorrhage**. *David Hasan, MD.* [Clinical Trials] clinicaltrials.gov.

66 This will make our proposal the first go/no-go randomized double-blind placebo vs. deferiprone trial that attempts to establish Ft (a reporter of total Fe in the brain and CSF) as a biomarker of neurocognitive decline specifically in subarachnoid hemorrhage subjects and test the effect of deferiprone in decreasing the levels of Ft and therefore ameliorate the neurocognitiv

1942. **Multi-center Randomized Pilot Clinical Trial On Remote Ischemic Conditioning In Acute Ischemic Stroke Within 9 Hours Of Onset In Patients Ineligible To Recanalization Therapies**. *Simone Beretta, MD, PhD.* [Clinical Trials] clinicaltrials.gov.

67 The RECAST trial also demonstrated increased plasmatic levels of HSP27 at 4 days in the intervention group, suggesting its possible role in neuroprotection and indicating HSP27 as a potential biomarker of neuroprotection11.