MORE EFFECTIVE TECHNIQUES OF THROMBOLYSIS WITH MICROBUBBLES AND ULTRASOUND: FEASIBILITY, SAFETY AND EFFECTIVENESS IN A CLINICAL STUDY (THE MUST TRIAL)

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DISCLOSURES

• MEDAC GMBH
• BTG, INTERVENTIONAL MEDICINE

MICROBUBBLES

Original Contribution:

ULTRASOUND ENHANCED PREDISCHARGE THROMBOLYSIS USING MICROBUBBLES INFUSION IN PATIENTS WITH ACUTE ST ELEVATION MYOCARDIAL INFARCTION: PILOT OF THE SMOOTHIES STUDY

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Thomas R. Polder,
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Microbubble-Mediated Sonothrombolysis Improves Outcome After Thrombotic Microembolism-Induced Acute Ischemic Stroke

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Lifeng Zhang, MD; Shuqin Shen, MD, PhD; Chunlei Zhang, MD; Xinfeng Li, MD;
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ADVANTAGES OF MICROBUBBLES

• Initial for diagnostic use as intravascular contrast enhancers

Non-specific mechanical effects → thrombus breakdown due to mechanical force of microbubbles + ultrasound
INCLUSION

- MEN AND WOMEN > 18 – 85 YEARS
- MAXIMUM OF 2 WEEKS OF SYMPTOMS OF LOWER LIMB ISCHAEMIA DUE TO THROMBOSED OR OCCLUDED LOWER LIMB PERIPHERAL NATIVE ARTERIES OR VENOUS OR PROSTHETIC BYPASS GRAFTS
- ACUTE LOWER LIMB ISCHAEMIA CLASS I AND IIA RUTHERFORD
- UNDERSTAND NATURE OF THE PROCEDURE AND WRITTEN INFORMED CONSENT

EXCLUSION: ALL KNOWN FACTORS THAT EXCLUDE STANDARD THROMBOLYSIS, HYPERSENSITIVITY TO CONTRAST ENHANCED AGENT, RECENT ACUTE CORONARY SYNDROME

ENDPOINTS

- SAFETY AND TECHNICAL FEASIBILITY
- ORGANISATION
- TREATMENT DURATION TO REPERFUSION ON DUPLEX ULTRASOUND AND ANGIOGRAPHIC SUCCES, TECHNICAL SUCCESS AND CLINICAL SUCCESS
- SAE + MORTALITY
- VAS- PAIN SCORES
- MICROCIRCULATION
PATIENTS' CHARACTERISTICS
OF THE 10 PATIENTS TREATED WITH UROKINASE

RESULTS OF UROKINASE
GROUP
- NO DEATHS
- NO SAE
- TECHNICAL FEASIBLE

CONTINUATION OF THE MUST TRIAL
- MICROBUBBLES + UROKINASE ➔ SAFE COMBINATION
- INCLUSION OF THE GROUP WITH ALTEPLASE
- FURTHER OPTIMISATION OF MICROBUBBLES TECHNIQUE ➔
- NANO BUBBLES

REDUCTION OF HAEMORRHAGIC COMPLICATIONS
BY MORE EFFECTIVE THROMBOLYSIS
WITH THE MICROBUBBLES TECHNIQUE