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**CG-GO- Crackology
Lusoria: Game is over**

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Background: Ischemic heart disease (IHD) remains the leading cause of death so far. Except cracking or bypassing atheroma, nothing has been done effectively until present. Alternatively, we propose an intrapulmonary pulsatile device (CAD) that promotes shear stress-mediated endothelial function approach.

Methods and Results: Twelve piglets (8.3 ± 1.5 kg) were given either pulsatile (P: n=6) or non-pulsatile (NP: n=6) treatment. Both groups underwent permanent left anterior descending coronary artery ligation with a median sternotomy. After 1 h of ischemia, heparin was injected (150 IU/kg). In group P, a prototype CAD, driven by a small ventilator, was introduced into the pulmonary trunk and pulsated intermittently over 1 h at 110 bpm, irrespective of heart rate (73 ± 16 bpm). In group NP, nitrates were given (7 ± 2 μ g/kg/min) for 1 h. Animals survived ischemia for 2 h in group P vs. 93 ± 30 min in group NP. With the macroscopic disappearance of IHD, hemodynamics and cardiac output (CO) were significantly ($p < 0.05$) better in group P compared to group NP: CO was 0.92 ± 0.15 vs. 0.52 ± 0.08 (L/min) respectively. Lower myocardial apoptosis (0.66 ± 0.07) compared to group NP (4.18 ± 0.27). Vascular resistances (dyne.sec/cm⁻⁵.kg⁻¹) were significantly lower ($P < 0.01$) in group P vs. group NP: pulmonary resistance was 119 ± 13 vs. 400 ± 42 , and systemic resistance was 319 ± 43 vs. 1857 ± 326 , respectively. Myocardial endothelial NO synthase mRNA expression was higher in group P (0.90 ± 0.09) than in group NP (0.25 ± 0.04 ; $P < 0.01$), probably due to endogenous pulmonary NO secretion.

Conclusions: Intrapulmonary pulsatile catheter may improve hemodynamic in acute IHD. Current ongoing study proves the feasibility of the method through a percutaneous intravenous approach. This represents a cost-effective that could restore endothelial function in long term.

Biography

Dr. Sayed Nour has completed his medical studies at the age of 24 years from Alexandria University Faculty of medicine and postgraduate studies in thoracic & cardiovascular surgery from Paris-V University School of Medicine. He is pediatric heart surgeon, medical researcher; Inventor of new cardiopulmonary & circulatory assist devices. Founder and RD Director of an international cardiovascular research organization. Current research centers: Laboratory of Biosurgical Research (Foundation Alain Carpentier) Paris – France. He is author of new hemodynamic theory (flow & rate), has written 3 theses, published original papers, and about 10 world patents of cardiac assist devices as well as given university lectures and abstracts presentations.