



The 44<sup>th</sup> Annual International Congress of the  
**EGYPTIAN SOCIETY OF  
CARDIOLOGY**  
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**Role of percutaneous balloon  
pulmonary angioplasty in  
treatment of CTEPH**

**Salma Taha, MD**  
Assiut university  
Egypt  
Esmail.salma@gmail.com

## CTEPH

- Pulmonary thromboembolism (PE) >> gradual thrombus absorption and resolution
- However in 0.5 and 9.1% (incomplete thrombus resolution >> fibrous organization >> mechanical obstruction of proximal and/or distal pulmonary arteries >> increase in pulmonary vascular resistance and pulmonary hypertension
- Sometimes, no history of PE or DVT (silent or in situ thrombus formation)



David W. et al, Euro intervention  
2016



- Slow flow and secondary thrombus formation, inflammation, distal arterial vasoconstriction, and vascular remodelling due to endothelial and smooth muscle cell proliferation >> plexiform lesions >> pulmonary hypertension
- Angiographically >> arterial stenoses or complete occlusion, web-like lesions, longitudinal bands, and bronchial arterial collaterals
- Diagnosis : combination of ventilation/perfusion lung scanning, contrast CT imaging, and pulmonary angiography
- Echocardiography and cardiac MRI are also valuable to document the effects of pulmonary hypertension on right ventricular size, function and tricuspid regurgitation



- Poor prognosis if no treatment



Chest

Volume 81, Issue 2, February 1982, Pages 151–158



**5-year survival for male patients aged 40-50 years; mean PA pressure of 41-50 mmHg : 35%, >50 mmHg: 10%**

Longterm Follow-up of Patients with Pulmonary Thromboembolism: Late Prognosis and Evolution of Hemodynamic and Respiratory Data

Martin Riedel, M.D.<sup>3</sup>, Vladimir Stanek, M.D.<sup>3</sup>, Jiri Widimsky, M.D.<sup>3</sup>, Ivo Prerovsky, M.D.<sup>3</sup>



- Medical therapy :endothelin receptor antagonists, phosphodiesterase-5 inhibitors and prostacyclin analogues and the novel compound risoglut (soluble guanylate cyclase



2001 ; reperfusion pulmonary oedema in 11 of the 18 patients (61%) but resulted in a significant reduction in mean PA pressure, with an associated improvement in NYHA class and six-minute walk time (6MWT) at three months

## Thromboembolic Pulmonary Hypertension

Jeffrey A. Feinstein, MD, MPH; Samuel Z. Goldhaber, MD; James E. Lock, MD; Susan M. Fernandes, PA-C; Michael J. Landzberg, MD

residual postoperative PH)



- Early : of 2:1-  
3:1)
- Lat •BPA an option for patients who are considered at  
high inoperable, or who have an unfavourable risk:benefit
- Jap ratio for PEA as a class IIb , level of evidence C
- Reduc (PVR), Encouraging first results  
reducti n  
functio n
- Right v on in  
RV vol action

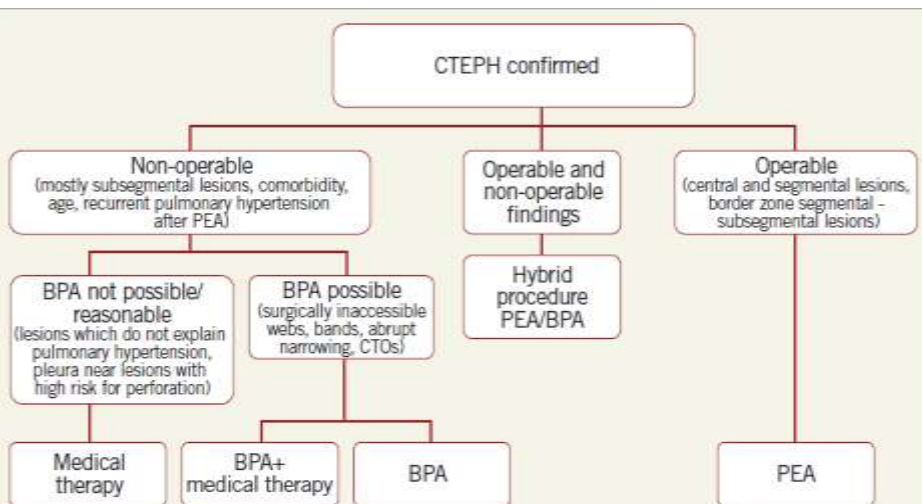
## Caution

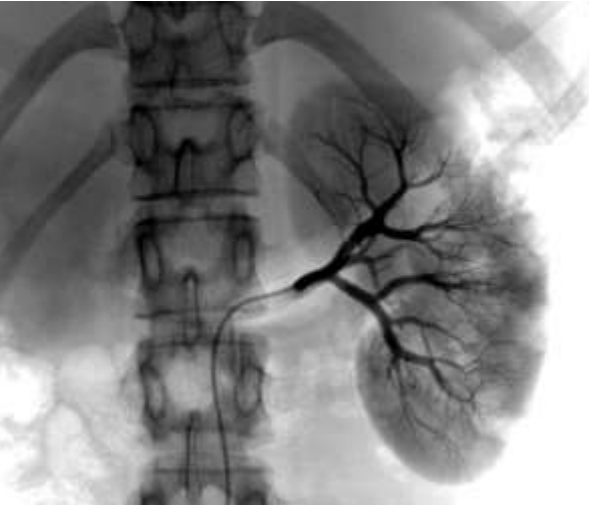



- Expert centers , multidisciplinary team including cardiologists with expertise in the medical management of pulmonary hypertension, respiratory physicians, cardiac surgeons with expertise in PEA, radiologists and other imaging specialists, intensive care specialists and/or anaesthetists, a clinical nurse specialist, and social work/geriatricians
- Experienced interventional radiologist or interventional cardiologist
- The institution : extracorporeal membrane oxygenation (ECMO) therapy and lung transplantation




## Patient selection




Procedure	Lung reperfusion injury	
Pulm		
Pulm		
Repe		
Acce		
Card		
Cont		
Cont		



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## Novel techniques

- Atrial septostomy
- Pulmoanry artery denervation




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