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Evaluation of right ventricular dysfunction post on-pump vs off-pump coronary artery bypass grafting by echo, is there a difference?

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Background: The right ventricle (RV) may be selectively impaired following coronary artery bypass graft (CABG).

Methods: We tested this hypothesis by prospective study. We examined two groups of patients. Group A (30) patients had off-pump CABG and group B (30) patients had on-pump CABG. All patients were subjected to pre-operative, early post-operative and six months follow up, full clinical and ECHO-Doppler studies. All patients had preoperative diagnostic coronary angiography (CA).

Results: There was insignificant difference comparing the clinical picture of right side heart failure (RSHF) in both groups. Pre-operative characteristics and RV function by ECHO did not differ significantly between the two groups (mean±SD): tricuspid annular plane systolic excursion (TAPSE) was 1.83±0.7 cm, 1.47±0.51 cm and 1.87±0.34 cm in pre-operative, early post-operative and six months follow up respectively in group A (off-pump patients), while in group B (on-pump patients) was 1.99±0.65 cm, 1.63±0.49 cm and 1.97±0.41 cm in pre-operative, early post-operative and six months follow up respectively. The tricuspid annulus pulsed wave tissue Doppler (TDTA) was 11.98±3.0 cm/sec, 9.77±1.73 cm/sec and 11.9±1.72 cm/sec in pre-operative, early post-operative and six months follow up in group A, while in group B it was 12.83±3.0 cm/sec, 10.77±2.12 cm/sec and 12.27±1.68 cm/sec. The parameters of RV function including PASP, RV dimension; TAPSE and TDTA were significantly impaired early post-operative in both groups and completely improved after six months.

Conclusion: The RV function significantly impaired early post-operative in both modalities of CABG irrespective of the surgical technique and completely improved to normal after six months. Both surgical techniques produced equivalent results on the RV function with or without significant disease of RCA.

Speaker Biography

Maha Hassan is working as a Cardiology Specialist at Helwan University. She has done her Master's degree and MD at Kasr El-Aini Medical School-Cairo University (Egypt). She received clinical training in the Cardiology Department since 2007. She has been working as an echo operator since 2010 and Vascular Doppler Operator since 2013 at ASSalam International Hospital-Maadi and private centers. She has participated in the conference of the European Society of Cardiology (ESC 2014) in Spain as Speaker (poster presentation). Her resume also includes participation at Cardioegypt Conferences as a Speaker (oral presentation) in 2014, 2015 and 2017. She has participated in Cardioalex Conferences by oral presentation in 2014 and 2017.

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