

## 6<sup>th</sup> International Conference on Clinical & Experimental Cardiology November 30-December 02, 2015 San Antonio, USA

## Longitudinal cardiac rotation abnormalities in children and young adults with end-stage renal failure undergoing hemodialysis: A pilot study

Sahar Shaker Sheta<sup>1</sup>, Lagies R<sup>2</sup>, Sheta S S<sup>2</sup>, Beck B B<sup>2</sup>, Hoppe B<sup>1</sup>, Sreeram N<sup>2</sup> and Udink ten Cate F E A<sup>2</sup> <sup>1</sup>Cairo University Children's Hospital (CUCH), Egypt <sup>2</sup>University Hospital of Cologne, Germany

**Background:** Longitudinal Cardiac Rotation (LR) is a movement of the apex during systole and diastole, with the heart appearing to rotate in a clockwise or counterclockwise direction. In this pilot study, we hypothesized that LR abnormalities are present in children with End-Stage Kidney Disease (ESKD) undergoing Hemo Dialysis (HD). We assessed the effect of preload on LR.

**Methods:** Twelve patients with ESKD (58% male; aged  $17.5 \pm 4.4$  years) were prospectively studied. Four-chamber views were acquired 1 hour before and after HD. Data were compared with 12 controls. Speckle tracking imaging was used for assessment of LR (°), longitudinal strain (%), and mechanical dyssynchrony (septum-lateral delay).

**Results:** LR abnormalities were seen in 50% of patients (end-systolic LR < -3.00° or > +3.00°). In 4 patients, LR changed in the opposite direction after HD. LR abnormalities were not seen in controls (LR between -2.00° and +2.00°). Controls showed the highest mean longitudinal strain (patients: -19.75  $\pm$  1.81% vs controls: -22.60  $\pm$  3.00%, P < 0.0001). Longitudinal strain decreased significantly after HD (preHD: -19.75  $\pm$  1.81% vs post HD: -17.41  $\pm$  1.68%, P < 0.0001). Mechanical dyssynchrony was more pronounced in patients (patients: 140.4  $\pm$  90.0 msec vs controls: 106.4  $\pm$  68.9 msec, P < 0.0001), and increased after HD (preHD: 93.1  $\pm$  84.6 msec vs postHD: 140.4  $\pm$  90.0 msec, P = 0.003).

**Conclusions:** Patients with ESKD have LR abnormalities, impaired longitudinal strain and more pronounced dyssynchrony. Preload reduction acutely changed the direction of LR in 30% patients.

## **Biography**

Sahar Shaker Sheta has graduated M.B.B.Ch from the Faculty of Medicine, Cairo, Egypt 1989 and was signed up excellent. She has completed M.Sc. in Pediatrics in 1994. She has done M.D in Pediatrics and Pediatric Cardiology in 1998. She is the Professor of Pediatrics and Pediatric Cardiology in the Department of Pediatrics since 2009. She is also the Head and Director of Non Invasive Echocardiography Lab., Cairo University Children's Hospital 2014. She has published more than 15 papers in reputed journals both nationally and internationally. She has been an invited speaker and chairperson in several international Pediatric cardiology conferences in USA, Europe and Middle East.

sssheta@yahoo.com

Notes: