**ELECTROCARDIOGRAPHIC PREDICTORS OF ARRHYTHMIA AFTER TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT**

**J.L. Penalver**, A. Agrawal, P. Ram, M. Rodriguez Ziccardi, D. Brito, F. Aguilar, M. Pitteloud, A. Mora, V. Figueredo

Einstein Medical Center, Philadelphia, PA, USA

**Background:** Cirrhosis causes prolongation of the QTc interval on the electrocardiogram (EKG). Transjugular intrahepatic portosystemic shunts (TIPS) increase preload and cardiac output and decrease pulmonary and peripheral resistance. The cardiac electromechanical changes from TIPS may also be associated with prolongation of the QTc interval. The clinical significance of this QTc prolongation remains unexplored.

**Methods:** We retrospectively reviewed 329 charts of cirrhotic patients that underwent successful TIPS procedure from 2006 to 2015. We excluded 129 patients (for lack of EKG information, pre-existing heart failure, structural heart disease) and another 46 patients for liver transplant within one year of TIPS. The EKG characteristics of 154 patients were documented at 1 week (N=62), 6 months (N=96) and 1 year (N=67) after TIPS.

**Results:** Of the 154 patients, 62 were female and 92 were male. Mean age was 56 years (SD 8). The most frequent causes of cirrhosis were hepatitis C virus (37%) and alcohol (26%). The mean QTc length pre-TIPS was 452 ms (SD 33 ms). One week after the TIPS procedure, QTc was prolonged (mean difference [95%CI]:16 [4 - 28] ms, p=0.01). At 6 months, the QTc was prolonged (mean difference [95%CI]: 20 [12 - 28] ms, p<0.001). At 1 year, the QTc was no longer prolonged (mean difference [95%CI]: -6 [-15 - 3] ms, p=0.20). Arrhythmia occurred in 10 patients, including ventricular fibrillation (10%), torsades de pointes (10%), non-sustained ventricular tachycardia (70%), and supraventricular tachycardia (10%). The odds of arrhythmia were not correlated to QTc change at 1 week, 6 months, and 1 year, respectively. Mortality was 27% (N=41) and it was mainly not cardiovascular in nature. The main causes of death were septic shock, hemorrhagic shock, and liver failure. Thirty-two patients died within 1 year after the TIPS procedure.

**Conclusion:** The TIPS procedure may contribute to an extra prolongation in the QTc within 6 months after the procedure, but the prolongation does not translate to an increase of life-threatening arrhythmias. There is normalization of the QT prolongation by 1 year after the procedure.