00018 Postoperative Ultrasound Doppler Imaging of Hepatic Artery Stenosis in Liver Transplantation: A Retrospective Study.

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Aims: To assess the efficiency of ultrasound (US) Doppler examination of hepatic artery in diagnosing hepatic artery stenosis (HAS) after liver transplantation using Computed Tomography Angiography (CTA) as the reference standard.

Methodology: This retrospective study reviewed data from January 2005 to August 2016, where US Doppler examinations of post-operative living and deceased donor liver grafts hepatic artery were compared with CTA performed within one month of US Doppler studies . US Doppler parameters such as intrahepatic artery (IHA) resistive index (RI), IHA systolic acceleration time (SAT), and peak systolic velocity (PSV) of the extra-hepatic artery (EHA) were evaluated. Mann Whitney U test and ROC was used to analyse the parameters involving HAS.

Result: Of the 42 patients reviewed, 7 (16.7%) had significant HAS on CTA?, where the intrahepatic artery (IHA) showed significant low resistance waveform pattern. Patients with HAS had significantly low RI (0.54 ± 0.10 vs 0.68 ± 0.09 cm/s; p=0.002) and significantly prolonged SAT (0.08 ± 0.03ms vs. 0.04 ±0.02ms; p= 0.001) compared to those who do not have HAS. Optimum thresholds for IHA RI was 0.56 (sensitivity 71.4% and specificity 90.6%) and IHA SAT was 65ms (sensitivity 71.4% and specificity 93.7%). Patients with HAS had significantly high PSV of EHA (281.9 ± 112.7cm/s vs. 80.1 ± 42.4cm/s; p<0.001) at optimum threshold of 212cm/s (sensitivity 85.7% and specificity 100%).

Conclusion: US Doppler is useful in detecting HAS. Early detection of these parameters may increase likelihood of graft and patient survival.