Appropriateness of TAVR in the Chronic Liver Patient Undergoing Liver Transplant Evaluation

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Background

As the indications for Transcatheter Aortic Valve Replacement (TAVR) continue to expand, understanding appropriate patient selection is becoming an area of growing interest. The presence of Liver cirrhosis has been previously proven to increase perioperative morbidity and mortality in patients undergoing general surgical procedures. However, there is limited research articulating clinical outcomes in TAVR patients with known liver disease who are actively undergoing orthotopic liver transplant evaluation (OLT).

Patient Case Summary

64 year old Hispanic Male

Past Medical History - Decompensated Hepatitis C Cirrhosis , Severe Aortic Stenosis, Thrombocytopenia, Stage 3 Chronic Kidney Disease

Symptoms - Shortness of Breath with multiple heart failure exacerbations requiring diuretics

Imaging - TTE - AVA 0.7cm2, PG - 78 mmhg, MG 40 mmhg

Cardiac Cath - Elevated filling Pressures and No CAD

CTA - Aortic valve Annulus 315 sq mm, Patent iliac arteries with minimal cross sectional diameter 6 mm

Laboratory Values - Total Billirubin - 6.1 mg/dl, Alkaline Phosphatase - 88 IU/L , Aspartate Aminotransferase 53 IU/ Alanine Aminotransferase - 17 IU/L , Albumin - 3.5 g/dl , Platelet Count - 49 B/L, Creatinine - 1.1 mg/dl

Risk Calculators - Child Pugh Score - 8, MELD - 17, STS risk- 2.2%

Best Practice Challenges and Considerations

Evidence Based Practice - limited studies to date (2015 to present) have retrospectively evaluated operative risk

1. Shah et al (2015) - 17 patients of 706 identified with chronic liver disease eligible for TAVR (mean age 77 years, average STS 8%, average MELD 11)
   - 2 of 17 died within 30 days, 3 of 17 died within one year
   - Complications - 5 of 17 experienced AKI, No Major Bleeding complications

2. Wendt et al (2017) - 11 patients of 640 identified with chronic liver disease eligible for TAVR (mean age 88 years, STS risk 9%, Average MELD - 16)
   - 9 of 11 patients died within 30 days

TAVR in Pre Liver Transplant Decision Tree

Conclusions

There is limited research articulating clinical outcomes in TAVR patients with known liver disease who are actively undergoing OLT. Ongoing STS risk score updates are helping to address the gap in understanding true operative risk. It is our center’s experience that multidisciplinary team commitment and discussion is necessary in order to successfully treat this high risk population.

References