Can Ultrasound be Used to Risk Stratify SOS Patient Outcomes?
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INTRODUCTION
- Sinusoidal obstruction syndrome (SOS) is a potentially fatal hepatic veno-occlusive disease that can be a complication after bone marrow transplantation (BMT)
- Patients with severe SOS develop signs and symptoms of portal hypertension and eventually multi-organ dysfunction
- The severe form of SOS is fatal in an overwhelming majority of patients despite available treatments and prophylaxis
- Our primary objective was to identify differences in liver ultrasound parameters between BMT patients who survived SOS episodes and those who did not

METHODS
- A single center cohort retrospective study on patients ages 0-21 years who underwent a BMT between September 2001 and May 2016, only including patients who developed SOS as a part of their post-transplant course.
- Complete abdominal ultrasound with abdominal Doppler was performed with GE Logiq E9 and Phillips IU22 machines using curved and linear transducers.
- Grayscale, color Doppler, and spectral Doppler liver ultrasound findings were identified and correlated to the development of SOS and patient outcomes
- T-tests and nonparametric tests were used to compare continuous and categorical variables respectively. Linear trend tests and Mantel-Haenszel trend tests were used to compare continuous and categorical variables over time respectively.

RESULTS
- 95 ultrasound variables were examined on 22 patients
- 12 (54%) subjects were male, 16 (73%) had malignant disease, and 13 (59%) are deceased
- Trends of change in ascites (Figure 1), reversal of portal venous flow and main portal vein pulsatility were statistically significant (Table 1)
- No grayscale or Doppler ultrasound variables were significantly different between the group that died of SOS and the group that survived their episode of SOS

CONCLUSION
- Reversal of MPV flow and MPV pulsatility related to the portal vein change with progression of SOS and correlate with disease progression.
- MPV pulsatility decreased while the MPV reversal of flow increased as disease progressed

CONCLUSION CONTINUED
- None of the ultrasound variables we examined are able to predict which patients will die of SOS.
- Although no ultrasound variables examined are able to predict which patients will die of SOS, MPV pulsatility and MPV reversal of flow can be used to monitor progression of disease

REFERENCES