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Interventional Oncology

Session: Late-breaking abstracts

The effects of a pressure-enabled drug delivery microcatheter on radiotracer distribution compared to a standard microcatheter in radioembolization, an interim analysis

Monday, March 6, 2023 3:00 PM – 3:09 PM Location: Phoenix Convention Center, 227ABC

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Disclosure(s): No relevant disclosure to display

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Purpose: To quantify differences in the delivery of 99m-technetium-labeled macroaggregated albumin(^{99m}Tc-MAA) to tumor and normal liver between a 2.4 Fr standard microcatheter (SMC) compared to a 2.4 Fr Pressure-Enabled Drug Delivery (PEDD) **microcatheter (TriNav® Infusion System; TriSalus Life Sciences Inc., Westminster, CO)** in pre-radioembolization mapping procedures.

Materials and Methods: Five patients with either hepatocellular carcinoma (HCC) (n = 1) or colorectal liver metastases (CLM) (n=4) undergoing radioembolization completed this ongoing IRB-approved investigator-initiated prospective randomized-controlled study. Each patient underwent two mapping procedures**,** one with a 2.4 Fr SMC and the other with a 2.4 Fr PEDD

microcatheter. Microcatheter tip position was consistent between the two mapping procedures. The sequence of device used for ^{99m}Tc-MAA delivery was randomized. Procedures were evaluated for technical success of positioning of the delivery catheter and associated catheter-related complications. A SPECT/CT was performed after each mapping procedure and Tumor to Normal (T:N) ratio was calculated for each mapping procedure using MIMpacs SurePlan LiverY90 version 7.0.4 (MIM Software, Inc. Beachwood, OH) of all tumors within the target region.

Results: Both the SMC and PEDD microcatheter were successfully navigated and positioned to the appropriate position for radiotracer delivery with no associated catheter-related complications. The T:N ratio for HCC in a single patient was 27% lower with the PEDD microcatheter compared to the SMC. Three of the four CLM patients experienced an increase in the T:N ratio with the PEDD microcatheter. The T:N ratio over the four CLM patients increased by an average of 64% ranging from -26% to 195% with the PEDD microcatheter compared to the SMC.

Conclusion: Interim analysis demonstrates 100% technical success in the positioning of both the SMC and PEDD catheter for delivery of radiotracer without associated catheter-related complications. Evaluation of T:N ratio demonstrates a trend toward improved T:N ratio with the PEDD microcatheter in CLM patients, though patient sample size remains small.