

GAP 2016 ABSTRACT

Radioembolization of primary and secondary hepatic malignancies aims to selectively deliver a high dose of internal radiation utilizing intra-arterial infusion of microspheres loaded with Y-90. The expected perfusion ratios range from 3:1 to 20:1 for tumor vs. normal liver parenchyma. Pre-therapy injection of Tc-99m MAA and subsequent SPECT/CT scanning is utilized for detection of lung shunt, evaluation of possible extrahepatic perfusion to nontarget organs and to evaluate coverage of the involved liver. The distribution of the post therapy Y-90 spheres can be imaged by Bremsstrahlung SPECT/CT. The aim of our study is to evaluate the predictive value of MAA scanning for subsequent Y-90 therapy.

We included 49 patients who received Y-90 embolization between 2012 and 2015 for primary and secondary hepatic tumors, (colorectal- CRC; n=20, 40.8%, hepatocellular -HCC; n=13, 26.5%, neuroendocrine- NET, n=7, 14.3%, intrahepatic cholangiocarcinoma- IHC, n=4, 8.2%, other - O, n=5, 10.2%).

A total of lesions were characterized. Regions of interest were drawn manually for tumors and adjacent normal hepatic parenchyma for both the pre-treatment MAA SPECT study and the post Y-90 therapy bremsstrahlung SPECT. Mean counts per pixel values and tumor to background ratio quantification was performed for each lesion. Uptake of MAA and post Y-90 Bremsstrahlung SPECT/CT studies were also evaluated and rated visually on a graded scale with Grade 1 - high uptake, Grade 2- moderate or heterogeneous uptake, Grade 3- equal and Grade 4- lower than liver parenchyma.

Results and conclusions