

Safety Analysis of Holmium-166 Microsphere Scout Dose Imaging During Radioembolisation Work-Up: A Cohort Study

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Highlights

The use of Holmium 166 (166-Ho) as a scout dose (250MBq) prior to radioembolisation is a safe alternative to Technetium-99m macro aggregated albumin (Tc-99m-MAA).

Background

- Before Yttrium-90 (Y-90) radioembolisation is performed, a scout dose is used to predict intra- and extrahepatic distribution of activity and check for potential contraindications. Tc-99m-MAA is commonly used; however, its predictive value has been debated in the literature
- In patients treated with 166-Ho microspheres, a scout dose using 250 MBq 166-Ho is used as an alternative

Objective

To retrospectively study the safety of 166-Ho microspheres as a scout dose before treatment with QuiremSpheres® (166-Ho microspheres).

Methods

- 82 patients with different tumor types that were treated with 166-Ho microspheres since the start of its clinical use were included i.e. from November 2009 till January 2016
- The scout dose with 166-Ho microspheres was aimed at 250MBq in all study protocols and administered intra-arterially
- All patients received the scout dose in the morning prior to the therapeutic 166-Ho dose, which was administered in the afternoon on the same day
- All patients were scanned on SPECT/CT scanner within one hour of the injection of 166-Ho scout dose

Results

- Mean dose of 166-Ho scout dose was 250MBq
- 6 patients had extrahepatic deposition of 166-Ho scout dose with median absorbed dose of 3.6 Gy. The maximum absorbed dose to extrahepatic tissues was 13.8 Gy
- No relevant clinical toxicity occurred
- No adverse events that were possibly, probably or definitely related to the 166-Ho scout dose occurred

CONCLUSION

This study demonstrates that the use of 166-Ho as a scout dose (250MBq) prior to radioembolisation is a safe alternative to Tc-99m-MAA.

In all patients with extrahepatic deposition, the extrahepatic depositions of a 166-Ho scout dose appears to be safe.

Key Takeaways

- The 166-Ho scout dose is safe in a clinical setting
- The 166-Ho scout dose provides a safe alternative for Tc-99m-MAA for radioembolisation work-up
- The 166-Ho scout dose potentially has several benefits over Tc-99m-MAA for radioembolisation work-up