

AbstractID: 7661 Title: Significant Differences Exist across Institutions in ^{90}Y activities compared to reference standard

Purpose:

The use of ^{90}Y microspheres for hepatic metastases from colorectal cancer is becoming more prevalent as an adjuvant therapy. In preparation for a prospective, multi-institutional study as first line adjuvant with concurrent oxaliplatin or irinotecan plus bevizamub; ^{90}Y activity was analyzed compared to the manufacturer's activity standard.

Method and Materials:

Each of the five (5) institutions participating in the study had a site visit to review activity measurement protocols. The manufacturer provided calibrated activity vials with four significant digit values. Absolute calibration was compared to the manufacturer's activity standard. The activity of the calibrated vial was also measured at the bottom and center locations. The ratio of bottom to center activity minus one was taken as a measure of the axial dependence. Different models and vendors of dose calibrators were included in this study.

Results:

The axial dependence of the dose calibrators ranged from 0 to 5%. The local activity standard varied from -4.5% to +4.0% compared to the manufacturer standard. The difference in the local activity standard could amount to 8.5% difference in activity measurement alone for the study and should be controlled.

Conclusion:

^{90}Y activity measurements varied significantly between institutions. Therefore the potential exists for errors in comparing delivered activity and eventual treatment outcomes between institutions using the same product. This limited study identified the magnitude of the previously unidentified problem.

Conflict of Interest (only if applicable):

This work was supported by an educational grant from Sirtex Medical.