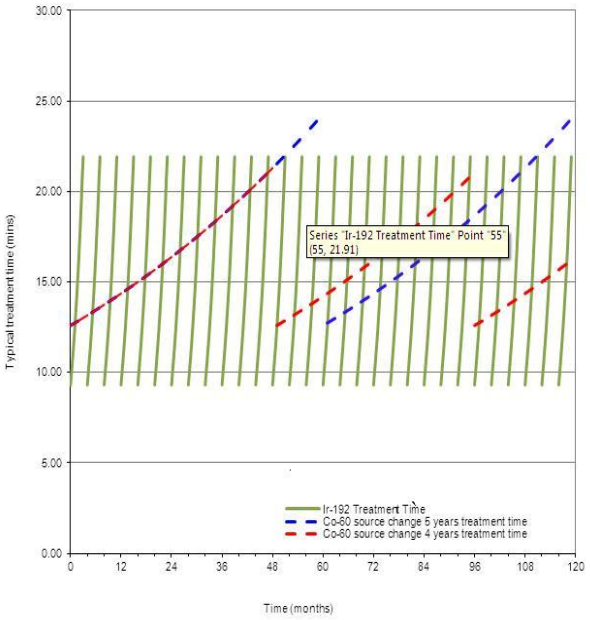

Figure 1 Indicative treatment time comparisons

Conclusions: Co-57 is a viable option for future development as a HDR radionuclide while Gd-153 will have limited uses for LDR or PDR. Of the commercially available sources little differences are observed between Co-60 and Ir-192 physically and clinically. The economic benefit of Co-60 is the greatest difference but other factors influence the choice of HDR equipment over and above the costs for most centres.

PO-1033

Dosimetric comparison of dose distributions in episcleral plaque brachytherapy

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Purpose/Objective: Brachytherapy of intraocular tumors with 125I eye plaques has become a successful treatment modality and a viable alternative to enucleation. Plaque Simulator (PS) is an eye plaque treatment planning system (TPS) that uses TG-43 dosimetry. We aimed to verify the performance of the PS routinely used to plan patients having intraocular tumors.
Materials and Methods: Relative dose distributions, including central axis depth dose and off axis dose profiles of Collaborative Ocular Melanoma Study (COMS) plaques with 14, 16, 18 and 20 mm in diameter, loaded with model I25.S16 seeds were measured using 1x1x1 mm^3 Thermo Luminesans Dosimetry (TLD) cubes and computed using MCNP5 Monte Carlo code and Plaque Simulator (PS) TPS. Measurements and calculations were compared by normalizing 5 mm distance at the central axis of the plaque i.e COMS point.
Results: For the central axis depth doses, the agreement between the measured and calculated dose distributions was within 13%, whereas deviations up to 22% were observed in single points far off-axis. For central axis dose distribution, the max difference among the PS, TLD and MCNP5 results was seen at 2 mm from the plaque center for all plaque sizes. For off axis dose distribution the maximum dose difference among the PS, TLD and MCNP5 results were seen at ± 12 mm from the central axis, periphery of the plaque.
Conclusions: The Bebig Plaque Simulator is a reliable TPS for calculating relative dose distributions around realistic multiple 125I seed configurations if one understands its limitations at the first few milimeters around the plaque center and far off axis points.

PO-1034

Can gamma analysis using radiochromich films be a reliable method to verify MBDCA reported by AAPM TG-186?

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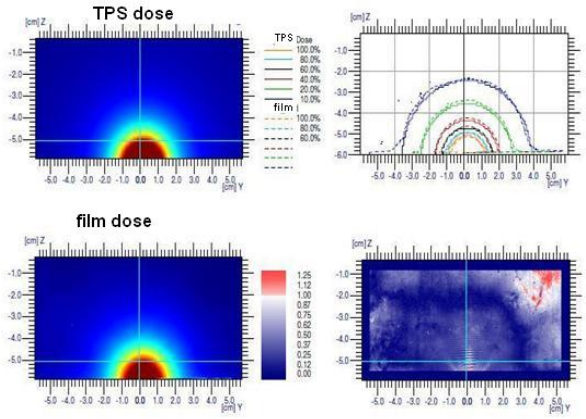
Purpose/Objective: Purpose of this study was to verify the spatial dose distribution around a single iridium source using dosimetric films and compare the designated distribution with data generated by the treatment planning system (TPS). The secondary goal was to determine whether such measurements may be used to commission model based dose calculation algorithms (MBDCA).
Materials and Methods: To determine the spatial distribution dose around the radioactive source radiochromic films MD-55 were irradiated. Films during irradiation procedure were placed at different depths in the phantom and in the opposite orientation to the long axis of the source. Measured dose distribution has been checked and compared with the calculated spatial distribution of dose generated in the treatment planning system. The dose calculation has been performed according to the TG43 report. To compare two images presenting absorbed dose (measured and planned) analysis gamma factor has been used.
Results: Comparison of the measured doses distribution and the corresponding dosegrids from TPS has showed that dose distribution around source may be measured using radiochromic films in certain dose range. The few areas of the images showed deviations from the acceptance criteria, mainly because of defects of films.



Conclusions: The best matching of the measured and