AbstractID: 8188 Title: Development of glass dosimeter postal dose intercomparison for high-energy photon beam

Purpose: The purpose of this study is to evaluate whether the glass dosimeter would be suitable for external dosimetric audit in the radiotherapy. We investigate the methodology of the absorbed dose determination with the glass dosimeter, which requires various correction factors in order to achieve the dosimetric accuracy. **Method and Materials:** The model GD-301 glass dosimeter and FGD-1000 automatic readout system were used. In order to assure dose measurement accuracy, the calibration coefficient and correction factors (non-linearity dose response, fading, energy dependence and angular dependence) of the glass dosimeter should be determined. We also performed the feasibility test of the glass dosimeter postal dose intercomparison for 8 beams output checks of high photon energy involving 4 centers in Korea. The glass dosimeter results were compared to the measurement obtained with a LiFTLD. **Results:** The feasibility results can be observed that, the relative deviations of the glass dosimeter were 3.5% smaller than the corresponding TLD values for all photon beams. It is possible that the agreement between the doses obtained with the glass dosimeter and stated doses by participants for following two main reasons: (1) the same dosimetry protocol is used at all participating centers to determine the dose given to the glass dosimeter: (2) the participating centers where the physicists have already experienced from a previous TLD audit program and have sufficient knowledge of the glass dosimeter system. **Conclusion:** This feasibility study has shown that the new glass dosimeter system has considerable potential to be used for a postal dose audit program. The next step in the glass dosimeter postal program will be the expansion of participating centers. We will investigate the other factors, such as the glass dosimeter holder correction used in this study which might influence the accuracy of determination of absorbed dose from glass dosimeter response.