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observed at clinically available dose-rate. In the future, we will apply this method to other cells and investigate the mechanism underlying the effects of high-dose-rate on cell survival.

OP-62

Influence of the Average Adult Definition on International DRL Comparison and Optimization.

[1].Satharasinghe Duminda, [2]WanninayakeMihira, [3]Pallewatte Aruna, [4]Jeyasugiththan Jeyasinga

Introduction: The diagnostic reference levels (DRL) can be used to identify the appropriate level of exposure for a given X-ray procedure. The DRL also defined per standard patient or phantom to limit the effect of patient size on the radiation dose. The definition of the standard patient varies from country to country. The Sri Lankan average adult weighs 58 kg, while the average European weigh around 70 kg. Therefore, the defined DRLs will be different since the exposures usually depend on the patients' physique. The optimization of radiation dose requires a DRL comparison between different countries with varying average adult populations. Therefore, such comparisons would mislead the optimization process. The present study aimed to evaluate the impact of the average adult definition on the calculated DRL.

Material and Methods: The dose area product (DAP) data of seven X-ray projections (cervical spine - AP/Lateral, abdomen AP, chest-PA, KUB and lumbar spine AP/Lateral) belong to 235 adult patients (18-89 years) were filtered into two average adult groups of weight 58 kg and 70 kg.

Results & Discussion: The percentage difference of the mean DAP (μGym2) value obtained for the groups mentioned above was found to vary between 2.7% to 67.0%. The mean DAP value for the 58 kg group was consistently lower than that of the 70 kg group. In addition, the resultant comparison of calculated IDRLs of two groups with the UK DRL showed the varied degree of optimization requirements (between (-1.2%) to (+53.1%) and (+2.3%) to (+64.2%) for group A and group B respectively).

Conclusion: Improper comparison of DRLs between different average adult populations could adversely affect both patient radiation dose and image equality. Therefore, it is recommending to compare DRLs between the countries with the same average adult populations during optimization.

Parallel Session- V I(B): Dosimetry & Radiotherapy

OP-63

Dosimetric Comparison of FF and FFF Beams for SRS and SBRT

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