Validating Calibration Factor For CORVUS and MIMiC System Using Film Dosimetry

The commissioning procedure for the CORVUS (3.0) treatment planning software with the MIMiC collimation system includes the determination of a calibration factor. The calibration factor is the ratio of the average measured dose to the average CORVUS calculated dose. The calibration factor is used to adjust the monitor units such that the dose delivered through the MIMiC system produces the intended dose based on monitor units computed using the CORVUS treatment planning system. Since the calibration factor alters the absolute dose it is of fundamental importance to be accurate.

Since the CORVUS and MIMiC system are new modalities, the method of determining the calibration factor has not been established. The NOMOS corporation recommends the use of film dosimetry. Here, various cylindrical shape target volumes are created on CT scans of the NOMOS film phantom. Treatment plans are generated on these test image sets using the CORVUS treatment planning system. The delivery instructions are transferred via floppy disk to the MIMiC system and doses are delivered to the films inside the NOMOS film phantom. Calibration films are taken and developed at the same time with the irradiated film to tie the relative film measurements to absolute doses. The calibration factor is computed as above and entered into the CORVUS treatment planning system. The process is repeated until an acceptable value is determined. This purpose of this study is to determine the consistency of this film dosimetry method.