

The Effect of Prostate Swelling on the Dosimetric Parameters Proposed by TG-64.

Several objective measurements of prostate implant dosimetry are potential predictors of outcome and are helpful to improving implant technique. TG-64 proposes several figures, D100, D90, D80, V200, V100, V90 and V80 for the objective prostate implant evaluation. Other quantities (i.e. V10 and V25 for bladder and rectum) may indicate changes in organ dose over time. By obtaining CT scans on the day of implant (DOI) and three weeks post, we found that swelling decreases by an average 34% for implant only patients (IMP) and 11% for external beam plus implant patients (XRTIMP). This agrees with published data. D100, D90 and D80 increase 27%, 14% and 12% respectively for averaged IMP and XRTIMP patients. These increases indicate an increase in the measures of implant quality between the DOI and three weeks. V200 decreases by 12% for IMP patients and increases by 20% for XRTIMP patients. The decrease in V200 for IMP patients indicates that smaller hot spots exist three weeks post implant, an increase in the implant quality measurement. V100, V90 and V80 decrease by 23%, 14% and 28% indicating implant dosimetry changes with the prostate volume during the 3 weeks following the implant. Other quantities such as bladder and rectum doses are somewhat worsened or inconclusive between DOI and three weeks post implant.