

Dosimetric Assessment of Hepatobiliary Tract Treatment

Typical external beam treatment of the hepatobiliary tract consists of a four-field box technique or a three-field employing wedged parallel opposed and anterior ports. It is inevitable that a treatment plan for this area involves the irradiation of critical structures such as the kidney, liver, spinal cord, small and large bowel.

However, at our institution, a three-port technique where the overlapped region is constraint to the target volume has been often used. The clinical impression of this technique over the other treatment techniques has been less toxicity to the patients. With this surprising result, we are trying to explain such an outcome.

In this presentation, the treatment plans will be designed using a three-dimensional treatment planning system. The treatment plans will consist of parallel opposed-fields, three-field, four-field techniques and the technique described above. The weighting will be adjusted to produce homogenous dose distribution. Target volume and volume of critical structures as outlined will be used to generate dose volume histograms. These dose volume histograms and isodose distributions will be used to define the dosimetric differences between each plan. Different photon beam energy will be explored for optimal dose distribution.