ABSTRACT

A grid block has been commercially designed and produced by Radiation Product Incorporate for the clinical treatment of bulky tumors. In this study dosimetric information was collected, using a Varian 2100 EX Platinum Silhouette linear accelerator, for the purpose of clinical treatment planning. Percent depth dose measurements were made using Radiochromic MD-55-2, Radiochromic HL-810, 0.01cc thimble chamber, and LiF TLD chips in a solid water phantom material at the depth of maximum dose. Beam profiles were determined using Raidochromic MD-55-2 film, Radiochromic HL-810, 0.01cc thimble chamber, and Kodak X-OmatV x-ray film. These measurements were performed as a function of field size and beam energy. They showed no significant variations of the dose rate as a function of field size. The data was compared to established, dosimetric data made with a NIST calibrated ion-chamber in a small open (3 x 3 cm^2) field. The results indicated a dose rate of 0.89 cGy/MU for a 6MV x-ray beam and 0.78 cGy/MU for an 18 MV x-ray beam. The beam shadow for the grid block shows results of 25% and 36% of the maximum open dose area, for a 6MV and 18 MV x-ray beam, respectively.

Keywords: Grid, specially fractionated, dosimetery, LiF TLD, Radiochromic Film