ICRU RELEASES REPORT NO. 93,
Prescribing, Recording and Reporting Light Ion Beam Therapy

International Commission on Radiation Units and Measurements (ICRU) Report 93, Prescribing, Recording and Reporting Light Ion Beam Therapy has been published.

Light ion beam therapy was initially developed at Lawrence Berkeley National Laboratory (LBNL). The first patients were treated with helium beams there in 1954, the same year, when proton therapy started at Berkeley. In 1975, also at LBNL, heavier ions, like carbon, neon, silicon and argon ions were used in clinical trials. It has been shown in these trials, that light ions offer not only a beneficial absorbed dose with depth curve, but in addition have an increased biological effectiveness in the Bragg peak as compared to entrance region. These features make light ions very attractive especially for treating radio-resistant tumors. The first clinical facility for carbon ion beam therapy was opened in 1994 in Chiba, Japan and the number of clinical centers has been increasing slowly, but steadily, with ten centers being in operation today.

Consistent with previous ICRU Reports 78 (2007) and 83 (2010), this report outlines the fundamentals of radiotherapy with light ion beams and recommends a strict terminology for volumes and doses (absorbed dose and RBE weighted dose). Moreover, the current radiobiological models, used clinically to calculate RBE, are reviewed. Recommendations are given, as to how clinical treatments should be prescribed, recorded and reported, in order to facilitate a comparison of clinical results and avoid confusion among different centers.

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