The dosimetric comparision of RapidArc with fixed gantry static IMRT for liver metastatic carcinoma

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Abstract **Objective** To compare the dosimetric difference of RapidArc and fixed gantry static IMRT for liver carcinoma.**Methods** Ten CT datas of liver cancer patients were studied retrospectively.The IMRT and RapidArc plans were generated using either one or two arcs.The PTV Dosimetric distrubition ,the OAR dose, the normal tissue dose,mornitor units and treatment time were compared.**Results** The maximum dose of PTV of RapidArc was lower than IMRT and there was statistically significant.RapidArc had an improved 90% prescription dose conformity index than IMRT(CI90=1.35±0.20 for RA1, 1.33±0.18 for RA2 and 1.62±0.41for IMRT) and there was statistically significant. For organs at risk all techniques respected planning objectives. RapidArc plan had a lower dose in V40 of stomach and Small bowel than IMRT plan ,but higher in mean dose of left kidney. Concerning the V_5 $V_{10}$and $V_{15}$of healthy tissue RapidArc plan was higher than IMRT plan.But the V_{20} V_{25} and $V_{30}$of healthy tissue of RapidArc plan was lower than IMRT plan. The number of computed MU/fraction of Rapid Arc plan was 40% or 46%of IMRT Plan and the treatment time reduced at least60% .**Conclusion** All techniques respected planning objectives. RapidArc showed improvements in conformity index and healthy tissue sparing with uncompromised target coverage. This, In combination with the less MU and short delivery time, can lead to clinically significant advances in the liver cancer .

Key words] RapidArc IMRT Liver metastatic carcinoma Dosimetric