Abstract ID: 15788    Title: The clinical application of Filed-in-Arc technique

Purpose:
To present Field-in-Arc technique and demonstrate clinical application from treatment planning dosimetric analysis.

Methods:
Two group patients consist of four hepatoma and four lung cases. The average volume of Lung is 104.88 cm$^3$ and hepatoma is 73.98 cm$^3$. All cases include field-in-arc, IMRT and RapidArc three different technique treatment plannings. The Field-in-Arc technique composed of one partial conformal arc and several static filedos. The static field has effect of weighting enhancement and dose compensation.

Results:
Monitor unit average ratio of Field-in-Arc over IMRT and its over RapidArc shows 0.4445 and 0.8414. Average conform index of hepatoma group shows 1.47 for Field-in-Arc, 1.24 for IMRT and 1.04 for RapidArc. The average of gradient measurement from 1.71 to 1.88 shows on significant different. Average conform index of lung group shows 0.99 to 1.13 and average of gradient measurement from 1.92 to 2.09. But V20 of Right lung the dose ratio shows Field-in-Arc technique higher than other two techniques approximate 1.3 times. Forward method to create simple intensity during arc rotation which is has similar PTV coverage dosimetric result as IMRT and RapidArc but less intensity change to result in poor sparing of organ at risk.

Conclusions:
This work indicates the potential of Field-in-Arc technique in clinical. The inverse method and better OAR sparing will develop in the future.