

# Volumetric modulated arc therapy in stereotactic body radiation therapy for metastases to abdominal lymph-nodes

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## Introduction

A planning study was performed comparing volumetric modulated arcs, RapidArc (RA), fixed beam IMRT (IM) and conformal radiotherapy (CRT) with multiple static fields or short conformal arcs in a series of patients treated with hypofractionated stereotactic body radiation therapy (SBRT) for solitary or oligo-metastases from different tumors to abdominal lymph nodes.

## Material and Methods

Fourteen patients were included in the study. Dose prescription was set to 45 Gy (mean dose to CTV) in 6 fractions of 7.5 Gy. Objectives for CTV and PTV were: Dosemin>95%, Dosemax<107%. For organs at risk the following objectives were used: Maximum dose to spine <18Gy; V15Gy<35% for both kidneys, V36Gy<1% for duodenum, V36Gy<3% for stomach and small bowel, V15Gy<(total liver volume - 700 cm<sup>3</sup>) for liver. DVH were evaluated to assess plan quality.

## Results

Planning objectives on CTV and PTV were achieved by all techniques. RA improved PTV coverage (V95%=90.2±5.2% for RA compared to 82.5±9.6% and 84.5±8.2% for CRT and IM respectively). Most planning objectives for OARs were met by all techniques, except for duodenum, small bowel and stomach where in some patients the CRT plans exceeded the dose/volume constraints. MU/fraction were: 2186±211 for RA, 2583±699 for IM and 1554±153 for CRT.

## Discussion

SBRT delivery by RapidArc showed improvements in conformal avoidance with respect to standard conformal irradiation. Delivery parameters confirmed logistical advantages of Rapidarc, particularly compared with fixed beam IMRT.

## References

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