INTRODUCTION

Radiation therapy (RT) is an important component of treatment in management of Wilms tumor (WT). The purpose of study is to investigate dose distribution of organ at risk (contralateral kidney) in pediatric patients with WT treated at our institute.

METHODS

All patients from (January 2009 - November 2018) with WT who were referred for RT after discussion in pediatric tumor board meeting were retrospectively reviewed for dose distribution to contralateral kidney. RT was planned according to SIOP treatment protocol. Average Mean dose was reviewed and tolerance dose criteria (12 Gy to < 1/3rd of kidney) was evaluated. All patients were discussed in departmental peer review meeting with at least two Radiation Oncologists and team of residents before starting RT. Treatment site (whole vs flank only), total dose prescribed, treatment phases and planning technique (3DCRT or IMRT) were also reviewed.

RESULTS

From January 2009 till November 2018, a total number of 19 patients of WT were identified who were treated with RT. Out of 19 children, 8(42%) were male and 11 (57%) were females. Mean age of children was 4 years (1 – 8years).

A total of 5 patients (26%) received whole abdomen RT with dose ranges from 19 Gy-36 Gy while 12(63%) patients received RT to hemo abdomen with dose ranges of 10-31 Gy. A total of 10(52%) patients planned with 3DCRT and 9(47%) with IMRT.

Out of 19 patients 2(10%) were planned for RT but did not receive RT due to clinical reasons. Average Mean dose received by contralateral kidney in 3DCRT was 4.7 Gy (0.67-13.8 Gy) and with IMRT 5.4 Gy (0.16-11.6 GY). All the patients met tolerance dose criteria except 2 patients whose plans were meeting second criteria (15 Gy to <33%).

CONCLUSION

Our study has shown that dose distribution to contralateral kidney was found to be lower than the tolerance doses as per protocol. We recommend each patients plan should be individually evaluated with peer review by Radiation Oncologist as well as Physicists for planning with 3DCRT or IMRT technique.

REFERENCES


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