

Endometrial treatments with electronic brachytherapy. Comparison to Ir192 and Co60

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INTRODUCTION

To compare 200 endometrial cancer patients treated in our center with cylindrical applicators and Axxent (Xoft Inc.) electronic brachytherapy and equivalent planning made for Ir-192 source and Co-60. In addition, evaluate cases of acute toxicity

METHOD

200 patients previously treated with Axxent (50 kV source) were replanned with Ir-192 and Co-60 source. The calculation for three types of source were performed on BrachyVision (Varian Inc.) treatment planning system. The prescription was 7 Gy per fraction. Planning parameters of a planning target volume (PTV) countoured from the cylinder surface to 5 mm along the active length were evaluated. V150 and V200 data for PTV and D2cc, V50% and V35% for organs at risk (OAR) were evaluated, the percentage volume receiving 35% and 50% of the prescription dose, respectively, and D2cc, highest dose to a 2 cc volume of an OAR. Results for bladder, rectum and sigmoid are showed.

RESULTS

- We may observe a reduction in dose at V35% and V50% in all OAR and also a reduction in D2cc occurs.(Table 1).
- The doses in OAR for eBT plans were lower than that for HDRBT plans, both Ir-192 and Co-60 plans, whose doses were similar.
- Results demonstrated lower doses to OAR in all eBT plans.

Table 1	Mean values of dosimetric parameters					
n=200	Axxent 50kV	SD	Ir-192	SD	Co-60	SD
PTV	%		%			
V150	20,5	5,9	8,6	4,9	7,8	4,1
V200	1,5	1,7	0,1	0,2	0,1	0,2
Bladder						
D2cc	66,4	17,1	71,6	13,9	70,2	14,6
V50	7,2	6,9	11,9	9,5	10,6	10,6
V35	14,8	12,3	26,6	17,9	23,2	17,6
Rectum						
D2cc	68,4	17,9	73,5	16,3	73,8	14,5
V50	9,9	6,6	16,7	11	17,6	8,7
V35	19,9	11,3	36,0	18,8	37,9	15,5
Sigmoid						
D2cc	51,4	29	59,8	24,6	55,1	22,1
V50	12,9	15,6	21,3	22	20,5	24,6
V35	28,8	28,6	41,5	28,2	37,5	28,5

Table 1

Table 2
Acute Toxicity

N=200	Grade 0	%	Grade 1	%	Grade 2	%
Acute Vaginal Mucositis	158	79,0	39	19,5	3	1,5
Acute Rectal Toxicity	197	98,5	2	1,0	1	0,5
Acute Urinary Toxicity	185	92,5	14	7,0	1	0,5

Table 2

- PTV parameters increase in the case of Axxent ,as reported previously, but only 1.5% of cases of vaginal mucositis with grade 3 were reported in our center.(Table 2).
- Acute toxicity in eBT was very low in cases of mucositis, rectal toxicity and urinary toxicity.

CONCLUSIONS

Results are very optimistic about the adequacy of Axxent device for treatment of endometrial cancer with a clear reduction of the physical dose in organs at risk and very low development of acute mucositis despite the considerable increase V150 in the treatment volume.Likewise, patients do not present acute toxicities in the bladder or rectum.

We conclude that eBT is a good alternative to treat endometrial cancer in centres without conventional HDR availability. To date, there are limited published studies reporting on outcomes from patients treated with eBT.

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