Low Incidence of Severe Early Toxicity in Patients with Cervical Cancer after Radiotherapy with PDR Brachytherapy Boost in High Doses per Pulse over a Short Treatment Time

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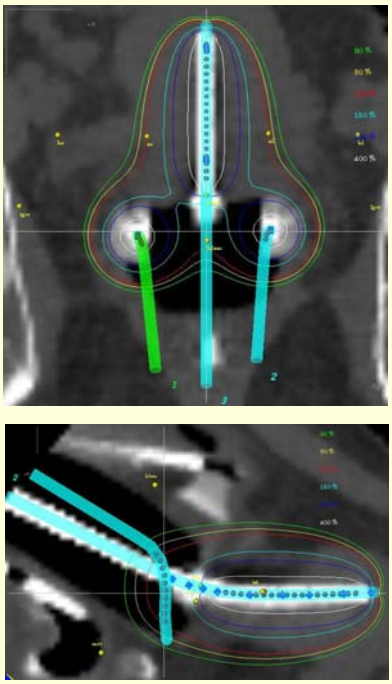
Purpose

Curative radiotherapy of inoperable cervical cancer usually consists of a combination of external beam radiotherapy (EBRT) plus brachytherapy. Severe early toxicity (grade 3-4 within 3 months) is reported to be 5-15%. We assessed **acute toxicity** of a PDR brachytherapy boost given in **high doses per pulse over a short treatment time**.

Patients and Methods



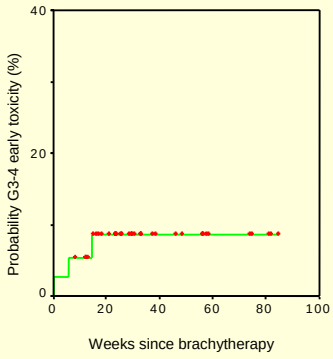
Period: January 2004 - July 2005
Patients: 36 with inoperable cervix cancer
External Beam Radiotherapy: 46/2.0 Gy pelvis
50.4/1.8 Gy pelvis + PAO
Brachytherapy: PDR
24 Gy in 24 pulses with 1 hour interval
Prescription on tumor volume with respect of normal tissue tolerance dose
(The brachytherapy dose is equivalent to a continouos LDR dose of 24 Gy at 100 cGy/h for α/β-ratio = 10 Gy and T1/2 = 1 hr).
Pelvic side-wall boost of 8-10 Gy in case of extra-cervical extension
Radiotherapy was combined in 28 cases with chemotherapy, hyperthermia or a combination of both

Combination therapy			
Radiotherapy	Chemotherapy	Hyperthermia	#
+	-	-	8
+	+	-	20
+	-	+	2
+	+	+	6

Toxicity was assessed starting at date of brachytherapy by the **CTC version 2 toxicity scoring system**.
After treatment patients were seen every 3 months. All patients were followed at least 3 months.

Results

Mean pulse doses in ICRU-points		
	Mean (cGy)	Range
Point A	93.2	53.1-130.3
ICRU rectum	62.0	34.4-97.5
ICRU bladder	74.4	24.9-160.4



Median follow-up for patients alive:
32.8 weeks (12.0-84.6)

Observed grade 3 early toxicity
(8.3% [95% CI 1.8 to 22.5]):

Type of Toxicity:
•Urinary frequency and urgency
•Vaginitis
•Diarrhea

No grade 4 early toxicity

Conclusion

Severe early toxicity after cervical brachytherapy with PDR in high doses per pulse over a short treatment time for cervix cancer is not increased compared to the incidence from the literature. This PDR schedule is thus feasible. The advantage of this PDR schedule is that in hospital treatment lasts only 24 hours, and that the number of applications can be limited to one