

## THE COMPARISON OF THREE METHODS OF POST-SURGERY BRACHYTHERAPY APPLIED TO WOMEN WITH ENDOMETRIAL CANCER

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### SUMMARY

Authors describe three different techniques of post-surgery intravaginal brachytherapy, which have been used in their centre since 1953 in women operated on for endometrial cancer. Efficacy and toxicity of these treatment methods are analysed.

### INTRODUCTION

Endometrial carcinoma takes the fifth place in the incidence of malignant neoplasms in Poland. The disease is diagnosed in about three thousand women every year and this number increases systematically (Zatoński et al., 1993). Surgery, radio-, chemo-, and hormonotherapy, applied separately or combined, can be used in the management of endometrial cancer, i.e. The method of cancer treatment depends in large measure on the FIGO stage. Surgery, which is in fact abdominal hysterectomy with bilateral salpingo-oophorectomy and adjuvant radiotherapy is recommended by most cancer centres (Spaczyński et al., 1996; Glasburn et al., 1992; Stryker et al., 1991). The postsurgical radiotherapy of women with endometrial cancer consists in combining tele- with brachytherapy. In external beam radiotherapy, photons of up to 20 MeV are used. The dose for the irradiated area is between 40 and 50 Gy. The aim of intravaginal brachytherapy is to increase the radiation dose to the apex and the upper part of the vagina, i.e. the parts most endangered with the recurrence of cancer. Radiotherapy after

surgery decreases the number of recurrences in patients with poor prognostic factors (Nori, 1987).

We would like to present our analysis of three post-surgery brachytherapy methods used in our centre in recent years. Different methods were used at different period of time depending on new techniques (new treatment equipment) available. Radium 226 was used in 1953-1986, and the after-loading LDR method with Cesium 137 came in use in 1986. The after-loading HDR method with Iridium 192 replaced both those techniques in 1995. The authors made a preliminary comparison of the treatment results, frequency and intensity of complications after the adjuvant radiotherapy in women operated on for endometrial cancer.

### MATERIAL AND METHOD

The analysis includes 240 women, aged 32-78 years, who were operated on and then were irradiated because of endometrial cancer.

	Radium 226	Cesium 137	Iridium 192
<b>Group description</b>			
Number of patients	71	92	77
FIGO-stage I	56	74	58
FIGO-stage II	13	12	15
FIGO-stage III	2	6	3
<b>Treatment methods</b>			
<b>Brachytherapy</b>	2 applic. with 15 mg Ra	cylindrical applicator	
Dose	55 Gy	50 Gy	18 Gy
Number of series	1	1	3 x 6 Gy
Treatment time	100 hours	about 48 hours	about 10 min
<b>Teletherapy</b>			
Time	tele- 3-4 weeks after brachytherapy		brachy during tele
Total dose	40 Gy	40 Gy	40-50 Gy
Dose per fraction	2 Gy	2 Gy	2 Gy
<b>Follow up</b>	5 years	5 years	2 years

Table 1. Description of analysed group and treatment methods.

## RESULTS AND DISCUSSION

	Radium 226	Cesium 137	Iridium 192
<b>5-year survival</b>	57 of 71 (80.3%)	82 of 92 (89.0)	
<b>2-year survival</b>			74 of 77 (96.0%)

Table 2. Survival of patients in the analysed groups.

Two-year survival of women treated with Iridium 192 was determined due to a shorter time of observation. Two women died of cancer and the progress

of the disease has been noted in one case. The survival results are similar to those given in literature (Mc Vie and Hossfeld, 1990).

<b>Post-irradiation reactions according to EORTC/RTOG I and II</b>		Radium 226		Cesium 137		Iridium 192	
		No	%	No	%	No	%
early	bladder	10	14%	15	16%	9	13%
	rectum	2	1%	0	0%	29	41%
late	bladder	5	7%	7	8%	7	10%
	rectum	12	17%	7	8%	18	25%

Table 3. Toxicity of analysed treatment methods.

No complications were found in patients with stage III and IV, either early or late. Also, there were no significant differences observed in respect of the amount of post irradiation complications from the bladder, depending on the applied method of brachytherapy. According to different authors, this percentage ranges from 7-12% (Stryker et al., 1991; Greven et al., 1991). The percentage of complications from the rectum is approximately equal to that reported elsewhere (Onsrud et al., 1992).

## CONCLUSIONS

1. The results of all the three methods are similar.
2. There were no radical differences observed between Radium 226 and Cesium 137 methods in respect of amount and intensity of complications. The larger number of reactions from the rectum when the Iridium 192 method was used could be associated with the higher activity and simultaneous use of tele and brachytherapy.

3. The superiority of the after-loading methods consists in the shorter time of treatment and thus patient's immobilization, especially with the HDR method, and in the negligible level of staff exposure to the radiation.

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