

HDR brachytherapy in the treatment of cancer of the uterine cervix: Results and complications in 346 patients (1980 - 1995)

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Purpose. The purpose is to present a safe use of intrauterine high dose rate (HDR) 192-Iridium applications in the primary treatment of cervical cancer with a combination of external beam (EBRT) and HDR brachytherapy (BT). Survival data and side effects will be presented.

Material and methods. From August 1980 to December 1995, 346 patients with cancer of the uterine cervix underwent primary irradiation in combination with external beam and HDR intracavitary treatment at the Department of Radiation Oncology at the Sisters of Mercy Hospital in Linz, Austria. Mean age was 60.8 years (range 30.1 to 86.6 years). All patients were classified according to the FIGO rules: Stage I 64 patients, stage II 186, stage III 93 and stage IV 3 patients. Eight patients were lost to follow up. In EBRT a dose of 1.7 to 2 Gy per day was given (4 fields per day) with a mean total dose of 37.4 Gy (range 20 - 66 Gy) over a mean time period of 46.6 days (range 35 - 77 days). The mean total BT dose was 29.2 Gy (range 4 - 46 Gy), the mean dose per fraction 8.2 Gy (range 4 - 10 Gy) and the mean number of fractions was 3.6 (range 1 to 6 fractions). The mean follow up time of survivors is 134 months. Side effects were evaluated according to the glossary of Chassagne and Sismondi.

Results. A complete remission could be achieved in 322 patients (93.1 %); persistent tumor was found in 24 patients at the first follow-up 3 to 5 months after the completion of irradiation. The actuarial overall survival probability for all patients at 5 and 10 years is 60.4% and 44.2 % respectively, the disease specific survival probability is 68.2 % and 62.4%. The local control rate at 5 and 10 years is 75.9 % and 73 %, and the disease-free rate 63.5 % and 58.9 respectively. According to stages I, II, and III & IV, the disease-specific survival at 5 years (event: death with or from disease) was at 91.7 %, 69.0 %, and 49.3 %, respectively, and at 10 years, it was 87.7 %, 64.4 % and 39.8 % respectively. The actuarial local control probability for stages I, II, and III & IV was 89.9 %, 75.5 %, and 66.0 %, respectively at 5 years, and 87.9 %, 72.9 %, and 61.2 % at 10 years (Kaplan-Meier calculations). From all 346 patients, 54 (15.6 %) presented with moderate or severe side effects. The actuarial rate for grade 2 complications after 5 years is 11.3 % and for grade 3 5.4 %, and after 10 years 11.9% and 6.7 %, respectively.

Conclusion. Intrauterine HDR brachytherapy in addition to external beam irradiation for primary treatment of invasive carcinoma of the uterine cervix provides excellent treatment results, the same as LDR applications concerning survival data and complication rates as well. Our results are matching with those of other authors very well. The method described above is a very effective tool for primary irradiation of cancer of the uterine cervix, and a safe one in experienced hands.

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