International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 13, No. 8, August 2024 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_13.8.2024.111

Original Research

Comparison of loco-regional recurrence in postoperative external beam radiation therapy versus external beam radiation therapy plus vaginal brachytherapy in stage II Endometrial cancer

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Received Date: 29 July, 2024 Accepted Date: 19 August, 2024

ABSTRACT

Purpose : To compare loco-regional recurrence in postoperative external beam radiation therapy versus external beam radiation therapy plus vaginal cuff brachytherapy in stage II Endometrial cancer

Material & methods : This retrospective study analyzed 55 patients of Carcinoma Endometrium attending the department of Radiation Oncology at Pandit B D Sharma PGIMS Rohtak, from June 2017 to May 2019. The median age of the patients was 60 years. Of all the patients, 55% were from rural area and 45% are from urban area. It has been found that 5% patients were tobacco users. Most common histopathology was adenocarcinoma (91%). All of the patients underwent surgical treatment comprising total abdominal hysterectomy with bilateral salpingo-oophorectomy and out of these, 22(40%) patients had received external beam radiation therapy only, and 33 (60%) patients had received external beam radiation therapy as well as vaginal brachytherapy.

Results : At median follow up of 18 months, there were no recurrence in any of the patients receiving external beam radiation therapy as well as vaginal brachytherapy. In patients who received only external beam radiation therapy, 11 (50%) patients developed loco-regional recurrence.

Conclusion : As per present study higher incidence was found in 5th decade of life. 55% of patients belong to rural area and adenocarcinoma being the most common histopathology. At follow up, there was no recurrence in any of the patients receiving external beam radiation therapy as well as vaginal brachytherapy. In patients who received only external beam radiation therapy, 11 (50%) patients developed loco-regional recurrence. Hence we conclude that postoperative external beam radiation therapy as well as vaginal brachytherapy is most effective treatment in stage II Endometrial cancer.

Keywords: Loco-regional recurrence, External beam, Radiation therapy, Vaginal brachytherapy, Endometrial cancer

INTRODUCTION

As compared to carcinoma cervix, the cancer of Endometrium is infrequently seen in Indian women. As per Globocan 2022 Endometrial cancer accounts for 17420 (1.2%) new cases in India.[1] This study adds to the limited literature pertaining to demographic indices and treatment outcome in Carcinoma Endometrium. It mainly concerns menopausal women. The majority of endometrial cancers are diagnosed at early stages. Surgery is the treatment of choice. It makes it possible to specify the stage according to the classification of the FIGO and thus to

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guide the indications of the adjuvant treatment.[2-5] Its prognosis remains relatively favorable with a cancer mortality rate that remains the lowest in comparison with other female cancers.

MATERIAL & METHODS

This retrospective study analyzed 55 patients of Carcinoma Endometrium attending the department of Radiation Oncology at Pandit B D Sharma PGIMS Rohtak, from June 2017 to May 2019. The median age of the patients was 60 years. Of all the patients, 55% were from rural area and 45% are from urban area. It has been found that 5% patients were tobacco users. Most common histopathology was adenocarcinoma (91%). All of the patients underwent surgical treatment comprising total abdominal hysterectomy with bilateral salpingo-oophorectomy and out of these, 22(40%) patients had received external beam radiation therapy only, and 33 (60%) patients had received external beam radiation therapy as well as vaginal brachytherapy.

RESULTS

At median follow up of 18 months, there were no recurrence in any of the patients receiving external beam radiation therapy as well as vaginal brachytherapy. In patients who received only external beam radiation therapy, 11 (50%) patients developed loco-regional recurrence.

DISCUSSION

Endometrial cancers rank 21 among all cancer in India.[1] More than 75% of patients are postmenopausal at the time of diagnosis and only 3% are under 40 years of age. Among the risk factors for this cancer, treatment with tamoxifen is mainly distinguished between obesity, diabetes and hypertension.[2] Hereditary forms represent 2 to 5% of endometrial cancers; they are mainly found in Lynch syndrome (hereditary non-polyposis colorectal cancer, endometrial, stomach, small bowel, pancreatic, ovarian, hepatobiliary cancer).[3] Two clinical and prognostic forms are currently described. Endometrioid carcinoma type 1 is slow-moving and has a favorable prognosis. The context is that of a state of hyperestrogenism and overweight. It is most often adenocarcinoma well to moderately differentiated. This form of endometrial cancer is often associated with genetic mutations (K-ras genes, RER genes).[2] Type 2 carcinoma develops faster than usual risk factors (obesity, diabetes, hyperestrogenism). Histologically, these are low-differentiated serous or clear-cell types. This second form of endometrial cancer is thought to be associated with p53 and/or HER2 gene mutations.[2]

The tumor grade represents the degree of differentiation and has a significant influence on the prognosis. It is most often an endometrioid adenocarcinoma. Other histological forms are mucinous carcinoma, clear cell carcinoma, serous papillary carcinoma, sarcoma and carcinosarcoma; in our studies Type 1 was the most common histological type (91% of cases). Clear cell carcinoma and serous papillary carcinoma are considered Grade 3 and is aggressive forms. Sarcomas account for about 5% of malignant tumors of the uterus and include mixed mesoderm tumors, leiomyosarcomas and endometrial sarcomas (stroma). Sarcomas are more aggressive, more frequently causing distant metastases.[3] Most common symptoms are post-menopausal or peri-menopausal metrorrhagia, usually spontaneous, painless and scanty. Other clinical signs are rare, they can be leucorrhea, heaviness or pelvic pain, urinary disorders. In our studies 98% of our patients, were complaints of metrorrhagia.

The pre-therapeutic assessment includes hysteroscopy, abdominopelvic magnetic resonance imaging (MRI), which has now become the best examination for the evaluation of myometrial penetration, and cervical invasion, or failing in pelvic abdomen scan.[4] In our studies our patients received a pelvic abdomen MRI scan.

Surgery is the gold standard treatment for endometrial cancer. It consists of a total hysterectomy with bilateral salpingo-oophorectomy. Additional procedures are lymphadenectomy, omentectomy for clinical stage, histological type and histological grade.[5] Surgery can be used to specify the stage and establish the prognostic factors. [13-5]

External radiotherapy is performed according to the conformational modalities and according to the recommendations of the Radiation Therapy oncology group (RTOG), with photons of very high energy (at least equal to 10 MV). The volume of irradiation depends on the tumor extension. It is limited to the pelvis, in the absence of common iliac lymph node involvement. The total dose is 45 to 50 Gy, with 5 weekly fractions of 1.8 to 2 Gy. In case of exclusive irradiation, not preceded by surgery, an overprint of lymph nodes suspected of invasion by imaging can be proposed until 'at a total dose of at least 60 Gy.[6,7] Vaginal brachytherapy is no longer useful at all stages of the disease.

Postoperative vaginal brachytherapy is performed preferentially at high dose rates, avoiding hospitalization and decubitus complications. A dose of 21 to 24 Gy is delivered in 3 sessions of 7 Gy or in 4 sessions of 5 to 6 Gy, calculated at 5 mm of thickness. When HDR brachytherapy is performed in addition to external radiotherapy, a dose of 10 Gy is

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delivered in 2 sessions of 5 Gy, calculated at 5 mm thick.[8,9]

Pelvic radiotherapy improves the rate of local pelvic control of the disease in poorly prognostic forms (stage II, grade 3, myometrial infiltration greater than 50%). It has no impact on metastatic evolution or survival.[7]

Management of patients with endometrial cancer is based on surgery, which establishes the stage of the disease according to the FIGO classification and identifies the factors of poor prognosis on which the decision of a treatment the most recognized adjuvant is: stage, histological grade, degree of myometrial infiltration, histological type, age, endocervical infiltration and the presence of intravascular tumor emboli.[7] Thus, for stage I, there are three prognostic groups.[10]

The low-risk group includes endometrioid adenocarcinoma without myometrial invasion or with an invasion limited to less than 50% of the grade 1 or 2 myometrium. Retrospective studies and a randomized Swedish trial published in 2009 all confirmed that, although brachytherapy vaginal vault is a well-tolerated therapy, it has no significant impact on local control. No adjuvant treatment can therefore be justified for these patients who have a risk of vaginal recurrence low, estimated at less than 3%, especially since these recurrences are accessible to radiation treatment,[10] so for stage IA and grade 1 or 2 cancers, no further treatment is therefore recommended.

The intermediate risk group consists of type I carcinomas without myometrial invasion or with invasion limited to less than 50% of grade 3 myometrial (IA), and carcinomas invading more than 50% of the thickness of the myometrium (IB) of grades 1 and 2. Vaginal brachytherapy is standard adjuvant therapy.[10] Four therapeutic trials demonstrated that in other patients in the group, pelvic radiotherapy improved the rate of local pelvic control of the disease but had no impact on metastatic evolution or survival. This made discuss the interest of this irradiation with brachytherapy only potentially as effective and less toxic. This question was posed by the PORTEC 2 trial (Post-Operative Radiation Therapy in Endometrial Carcinoma) 2. The presentation of the preliminary results at three years suggested that the two therapeutic modalities had similar efficacy in terms of recurrence-free survival and overall survival.[11] The group at high risk of recurrence includes type I carcinomas with more than 50% invasion of grade 3 myometrial (IB) thickness and type II carcinomas (IA and IB). For these patients, it is recommended to do external pelvic radiotherapy and brachytherapy of the vaginal vault, which does not, however, reduce the risk of recurrence to less than 10%. In these patients, the rate of metastatic progression is also high, which makes discussing concomitant chemoradiotherapy followed by adjuvant chemotherapy.[12]

In the case of stage II tumors: the recommended therapeutic course of action is surgery followed by radiotherapy with or without brachytherapy. In the advanced stages (III and IV): the therapies must be more aggressive. Surgery is proposed where possible because, combined with radiotherapy; it provides better results than exclusive irradiation. In advanced forms or at high risk of recurrence, trials including chemotherapy, exclusive or concomitant to irradiation, have been conducted in recent years. The results of these trials have shown the potential value of chemotherapy to decrease.[13]

CONCLUSION

As per present study higher incidence was found in 5th decade of life. 55% of patients belong to rural area and adenocarcinoma being the most common histopathology. At follow up, there was no recurrence in any of the patients receiving external beam radiation therapy as well as vaginal brachytherapy. In patients who received only external beam radiation therapy, 11 (50%) patients developed loco-regional recurrence. Hence we conclude that postoperative external beam radiation therapy as well as vaginal brachytherapy is most effective treatment in stage II Endometrial cancer.

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