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Nimotuzumab in the Management of Carcinoma of Cervix: A Case Report

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Abstract

Survival is poor with conventional treatment especially in patients with advanced cervical cancer. In this case report, a 51-years-old patient of cervical cancer with large cervical mass invading the uterine body and left terminal ureter was treated with neoadjuvant chemoradiotherapy followed by concurrent chemoradiotherapy. Weekly Nimotuzumab 200 mg was administered during neoadjuvant chemotherapy as well as concurrent chemoradiotherapy. At the end of the treatment patient showed no evidence of disease. Disease recurred after one and half years and patient was treated with weekly nab-paclitaxel along with the Nimotuzumab for 16 weeks. Patient had no evidence of disease and is healthy, comfortably doing daily activities after 4 years of treatment. Use of Nimotuzumab in this patient of cervical cancer was safe and showed excellent outcomes.

Keywords: Cervical cancer; Carcinoma; Breast cancer; Menopause; Endometrial cavity; Neoadjuvant chemotherapy

Introduction

Cervical cancer is the fourth most common cancer of women in the world and in India it is the second most common cancer of women after breast cancer. In India 1,22,844 women are diagnosed with cervical cancer every year and 5 year prevalence of women diagnosed with cervical cancer is as low as 27.4% [1].

Women with locally advanced cervical cancer have a higher rate of recurrence and worse survival than those with early-stage disease. The rate of relapse is at least 30 percent, and five-year survival rates range from 80 percent for stage IB disease to 30 percent for stage III disease [2]. Survival is poor with conventional treatment especially in patients with advanced disease and hence targeted therapies could be answer to the unmet need in management of cervical cancer. In this case report we are sharing our experience with nimotuzumab a novel monoclonal antibody in the management of locally advanced and recurrent cervical cancer.

Case Report

A 51-year-old female patient came to the hospital in 2014 with complaints of difficulty in passing urine for three months, complaints of burning micturition for three days. The patient has a history of a sterilization operation twenty-eight years back and has undergone menopause a year back. She has two alive children. The patient did not have any history of hypertension, diabetes, cardiac disorder, use of alcohol or tobacco in any form.

On examination patient was found to had hard, large lump in pelvis measuring about 6 × 6 cm mass was originating from cervix and was visibly obstructing vagina completely as well as urethra. Cervical biopsy reported that it was poorly differentiated non-keratinized small cell type squamous cell carcinoma of cervix [3].

CT scan of whole abdomen was done on 09/03/2014, revealed a medium to large cervical mass measuring about 54 × 43 × 56 mm in size invading the uterine body and left terminal ureter measuring 33 × 26 × 38 mm in size. An approximately 16 cc fluid collection was seen in the endometrial cavity representing either hematometra or pyometra. Based on history, examination, biopsy and CT scan, patient was diagnosed as stage IVA carcinoma of cervix.

Patient was inserted a urinary catheter and recommended neoadjuvant chemotherapeutic treatment with Nab-Paclitaxel 300 mg IV three weekly for 3 cycles, Carboplatin 450 mg IV three weekly for 3 cycles and Nimotuzumab 200 mg IV weekly. After 2 cycles of chemotherapy, the urinary catheter was removed. After completing 3 cycles of neoadjuvant chemotherapy, CT whole abdomen on 19/05/2014 revealed regression of the tumor mass up to 70% to 80%.

The patient was then recommended concurrent chemoradiotherapy along with nimotuzumab. Radiotherapy administered as EBRT for 5 weeks (Five days a week, 2 Gy per fraction for total 50 Gy) and subsequently ICRT (7 Gy to point A once in a week) for 3 weeks. Cisplatin 50 mg weekly and Nimotuzumab 200 mg weekly was administered concurrently with radiotherapy. At the completion of radiotherapy, CT scan of abdomen on 28/07/2014 showed no evidence of disease. Patient was kept under observation and patient was lost to follow up for 1 and half year.

The patient came to the hospital after one and half year with the complaints of bleeding per vaginum. On examination mass was seen at cervix. Patient was diagnosed as local recurrence of cervical carcinoma for which patient was recommended maintenance therapy using Nab-Paclitaxel 100 mg weekly along with Nimotuzumab 200 mg weekly for 16 cycles. The patient showed complete response after 6 cycles [4].

CT scan whole abdomen performed after completion of 16 cycles of weekly chemotherapy again showed no evidence of disease and patient was continued on the treatment till disease progression and is on regular follow up until now. Gynecological examination revealed no growth seen and patient was kept under observation. At the last follow up on 05/07/2018, patient showed complete response, was healthy and comfortably doing daily activities as well as household chores.

Patient tolerated treatment well with no grade 3 and grade 4 toxicity was seen.

Discussion

Women with locally advanced cervical cancer are treated with combination chemotherapy and radiation. Survival rate with concurrent chemoradiothepy is poor and associated with significant treatment sequelae. Active research is gaining insight into the molecular characterization of cervical cancer, which may help better define outcome and personalize treatment with novel therapeutic targets.

EGFR a transmembrane glycoprotein is overexpressed in a wide variety of solid tumors and in cervical cancer EGFR is overexpressed in up to 90% of cases. Multiple studies have shown that EGFR overexpression is significantly associated with poor disease outcomes in cervical carcinoma, shorten disease-free survival and overall survival when treated with conventional treatment. Anti EGFR monoclonal antibody could improve outcome in these patients.

Nimotuzumab a novel monoclonal, which binds specifically to cells with EGFR overexpression has shown 100% response rate and more than 38 months of survival benefit when given along with concurrent chemoradiotherapy as compared to the patients given concurrent chemoradiotherapy only, in patients with unresectable locally advanced head and neck cancer [3]. This favorable outcome in head and neck cancers and our own experience with nimotuzumab in other solid tumors such as esophageal cancer, glioma and pancreas suggests that a similar approach can provide additional survival benefits in other epithelial EGFR-dependent and radiation-sensitive tumors such as cervical cancer.

After completion of first line treatment with nimotuzumab and conventional treatment our patient showed no evidence on disease. Patient recurred after one and half year and again recommended nimotuzumab with conventional chemotherapy. After 16-week treatment patient showed NED and patient is continued on treatment for about one year. Use of Nimotuzumab in this patient of cervical cancer was safe and showed excellent outcomes. Results need to be validated in a randomised controlled trial.

Conclusion

Patient of cervical cancer showed no evidence of disease in first line as well as recurrent setting when treated with nimotuzumab and conventional treatment. However, role of nimotuzumab in routine clinical practice should be validated.

Compliance with Ethical Standards

- **Disclosure of potential conflicts of interest:** None.
- **Research involving human participants:** All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki declaration of 1975, as revised in 2008.
- **Informed consent:** Informed consent taken.

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