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ORIGINAL ARTICLE

A STUDY OF CONVENTIONAL RADIOTHERAPY WITH DAILY 5-FLUOROURACIL AS RADIOSENSITIZER IN SQUAMOUS CELL CARCINOMA OF ORAL CAVITY

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ABSTRACT: PURPOSE: This study is done for the effect of 5-FU as radio sensitizer in dose of 80mg/m^2 daily with conventional radiotherapy in squamous cell carcinoma of oral cavity and to evaluate the effectiveness of 5-FU in achieving loco-regional control along with radiotherapy. **METHOD:** The study included 25 patients of squamous cell carcinoma of oral cavity reported at SGPT Cancer Hospital, Indore. Every patient was treated with external beam radiotherapy to primary site with 5-FU as radio sensitizer. **RESULTS:** Female showed slightly better response. Younger age group showed better response. Tongue cancer showed better response than buccal mucosa cancer. **CONCLUSION:** Result with 5-FU as radio sensitizer in oral cavity carcinoma were not so encouraging. Newer reduced dose regimens with addition of better time scheduling and better radio sensitizer are needed.
KEYWORDS: 5-Fluorouracil, Oral Cavity Carcinoma, Radiotherapy in Squamous cell Cancer.

INTRODUCTION: Oral cancer is the most common malignant neoplasm in India, accounting for 20-30% of all cancers. The term oral includes lips and all intra- oral sites corresponding to tongue, gums, floor of mouth and palate. The tongue, alveolus, gingiva-buccal sulcus, buccal mucosa are some of the common subsites of carcinoma. Approximately 90% are primary squamous cell carcinoma.

Several chemotherapy agents[1]eg. Paclitaxel, Bleomycin, Hydroxyurea, Methotrexate, Cisplatin, 5-Fluorouracil have a high activity in squamous cell carcinoma of head and neck. A combination of chemotherapy with RT has been practised for many years. The fluoropyrimidines (5-fluorouracil and fluorodeoxyuridine) increase the effectiveness of radiation chiefly when given before and during radiation. Increased radiation sensitivity occurs in cells that progress inappropriately into S phase in the presence of the drug, suggesting a key role for dysregulation of S-phase checkpoints.

Inspired by these results we have planned a trial using 80 mg/m^2 5-FU[2] as radiosensitizer in squamous cell carcinoma of the oral cavity with conventional radiotherapy in 5 days/week as a curative intent.

AIMS & OBJECTIVES: To study the effect of 5-FU as radiosensitizer in a dose of 80mg/m^2 daily with conventional radiotherapy in squamous cell carcinoma of the oral cavity. To evaluate the effectiveness of 5-FU in achieving loco-regional control along with radiotherapy. To analyse the complication of 5-FU along with Radiotherapy.

MATERIAL & METHOD: We conducted a prospective study of 25 patients of squamous cell carcinoma of oral cavity reported at SGPT Cancer Hospital, Indore. Every patient was treated with external beam radiotherapy to primary site with 5-FU as radio sensitizer.[3]

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During therapy patients were examined daily as a routine for mucosal reaction, skin reaction, dysphagia, salivary secretions, nausea and vomiting, for any superimposed infection as well as response to therapy.

End point included tumour response, toxicity to radiotherapy or chemotherapy, loco-regional control and survival.

STATISTICS:

Characteristics		Number	Percentage
Sex	Male	14	56
	Female	11	44
Age	Median	25-70	-
	Mean	45	-
Stage	I	2	8
	II	2	8
	III	16	64
	IV	5	20
KPS	100%	0	-
	90%	0	-
	80%	5	20
	70%	17	68
	60%	3	12
	50%	0	-

Table 1: Patient Characteristics (n=25)

KPS = Karnofsky Performance Scale

Site	Male	Female	Total
Buccal Mucosa	9	4	13
Tongue	3	3	6
GB Sulcus	1	1	2
Lower alveolus	1	2	3
Retromolar Trigone	-	1	1

Table 2: Distribution of Primary Sites

Characteristics		Total	Complete Response (No. of Patients)
Sex	Male	12	3
	Female	8	4
Age	21-30	2	1
	31-40	6	2
	41-50	7	4
	51-60	3	0
	61-70	2	0
Stage	I	2	2
	II	2	1
	III	12	4

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	IV	4	0
Site	Buccal Mucosa	11	3
	Tongue	5	4
	GB Sulcus	1	0
	Lower Alveolus	3	0
	RMT	-	-

Table 3: Complete response & patient characteristics

DISCUSSION: Oral cancers are common in 5th and 6th decades, but in female the peak age group is one decade earlier. The patients characteristics enrolled in the study specifically age, sex, site, stage, morphology are fairly typical for patients with oral cavity cancer. As oral cancer are predominates in male, the possible explanation is due to different habits like smoking, chewing tobacco with lime and alcohol intake.

In the literature reviewed, various studies have shown a beneficial effect of chemotherapy as radio sensitizer in improving the results of treatment. A different combination of chemotherapy has been used in the treatment of oral cancers.

5-FU as radio sensitizer has known for more than four decades. Although these agents act via several mechanisms,[4] they frequently sensitize cells to radiation by inhibiting the nucleotide synthesis machinery. Enhanced effect of 5-FU was seen when it was given 20-48 hrs. Before irradiation therapy, but the effect of 5-FU was decreased when given less than 20 hrs. Before irradiation. The goal of combined modality therapy are to increase survival by improving local tumour control, decreasing distant metastasis or both with organ and function preservation.

CONCLUSION: The study came out with following conclusions: Result with 5-FU as radiosensitizer in oral cavity carcinoma were not so encouraging. A newer reduced dose regimen with the addition of better time scheduling and better radiosensitizer are needed.

Mucositiesis the major drawback in present studies hampering the result and delaying the radiotherapy duration and short term treatment interruption. Female, younger age group and early stage patients showed better response.

No haematological or neurological toxicity was observed. However the number of patients in our study is small and median follow is short duration. Therefore late complications could not be evaluated.

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