

Role of Concomitant Chemoradiotherapy in Advanced Head & Neck Cancer

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A prospective study was conducted at Clinical Oncology Department K.E Medical College/Mayo Hospital, Lahore from March, 2003 to February 2004 to evaluate the response in 25 eligible advanced irresectable head and neck cancer patients treated with concomitant chemo-radiotherapy. Male patients were 18(72%) in number and female were 7(28%). T₂ lesions were treated with a total dose of 6500 cGy while T₃ and T₄ lesions were given a dose of 6500 - 7500 cGy in conventional fractions. Single agent, cisplatin (100 mg/m²) was given with radiation therapy. Thirteen (52%) patients had a complete response and 9 (36%) patients had partial response. Concomitant chemo-radiation therapy is a better option for irresectable stage III and IV head and neck cancers with manageable toxicities (Grade III and IV) in majority of the patients.

Key Words Concomitant chemo-radio therapy, head and neck.

Head and Neck cancers are comprised of 2% - 3% of all cancers in the United States and account for 1% - 2% of all cancer deaths. This includes 20,300 cases of oral cavity cancers, 8,900 cases of laryngeal cancer, and 8,600 cases of pharyngeal cancer. Most patients with head and neck cancer have metastatic disease at the time of diagnosis (regional nodal involvement in 43% and distant metastasis in 10%)¹.

Head and neck cancers encompass a diverse group of common tumors that are frequently aggressive in their biological behavior. Moreover, patients with head and neck cancer often develop a second primary tumor². Head and neck cancer is more common in men; 66% - 95% of cases occur in men. Incidence by gender varies with anatomic location and has been changing as the number of female smokers has increased. The male-female ratio is currently 3:1 in head and neck cancers. In Hypopharyngeal cancer with Plummer-Vinson syndrome, the ratio is reversed³. The incidence of head and neck cancer increases with age, especially after the age of 50 years⁴. Overall 5-year survival rates are 56% in whites and 34% in blacks⁵.

The risk of laryngeal cancer, for example, is two to six times higher in Bombay, India than in Scandinavia. The higher incidence of the disease in Asia is thought to reflect the prevalence of risk factors, such as betel nut chewing and use of smokeless tobacco⁶. The combine use of alcohol and tobacco is another contributing factor for head and neck cancer. The approximate distribution of head and neck cancer in oral cavity, larynx and pharynx is 44%, 31% and 25% respectively⁷.

Brizel et al (1999)⁶ reported the results from a phase III randomized prospective study from Duke University. Patients were randomized between hyperfractionated radiation alone to a total dose of 7,500 cGy or hyperfractionated radiation to a dose of 7,000 cGy with concurrent cisplatin and 5-FU chemotherapy during radiation and 2 cycles of the drugs after radiation therapy. At 3 years, the rate of overall survival was 55% vs 34% in

favor of the combined modality arm; loco-regional control was also superior in the combined therapy arm, 70% vs 44%.

Material and methods:

From March 2003 to February 2004, 25 eligible patients of advanced Head and neck cancers were treated with concomitant chemo-radiotherapy at Clinical Oncology Department KEMC/Mayo Hospital, Lahore. WHO criteria was used for histological classification of tumours⁸. Staging work up was completed with chest X-Ray postero anterior view, complete blood count, abdominopelvic ultrasonography and CT scan of an area extending from base of skull to thoracic inlet. TNM classification for malignant tumor by UICC was used for staging⁹.

All 25 Patients were randomized to receive conventional irradiation (7,000 cGy/ 6 weeks). Concurrent cisplatin 100 mg/m² D1, D22, D43 followed by 3 cycle of cisplatin + 5 FU in conventional dosages. One year estimated overall survival with concomitant chemo-radiation therapy was 72%. It was associated with increased toxicity (Grade III, IV) in 90% of the Patients.

Results:

Age of the patients ranged from 21-70 years with a median age of 36 years. Male to female ratio was 2.6:1. Patients characteristics, age distribution, aetiological factors, symptoms of patients at diagnosis and complications are given in tables 1 - 5.

Discussion:

In this study, complete response, Partial response, stable disease and progressive disease are 13(52%), 9(36%), 2(8%) and 1(4%) respectively in stage III and IV patients with concomitant chemo-radiotherapy in head & neck cancer. Adelstein et al (2000)⁷ showed response rate of 72.1% with median survival of 19.1 months in their studies with concomitant chemo-radiotherapy.

Overall, complications in different patients varies from 5% to 95%. Pain and mucositis is the most common complication in patients with concomitant chemo-radiotherapy. Dysphagia is in 24 (96%) patients but 4(16%) patients also showed trismus. 2(8%) had osteoradionecrosis and 2 (8%) had neutropenia. In a study by Garden et al (2001)¹, the most common complication was dysphagia (91%) but other complications like trismus, neutropenia and mucositis were also observed. It is difficult to document late neurological complications as they have a longer latent period ranging from 1.5 – 13 years with a median of 5 years¹⁰.

Conclusion:

Concomitant chemo-radiotherapy is a better option for irresectable stage III and IV head and neck cancer with manageable toxicities (Grade III and IV) in majority of the patients.

Table 1. Patients Characteristics

Age	21-70 Years
Male	18
Female	07
Ratio:	2.6:1
TNM Stage grouping	
Stage III	
T ₃ N ₀ Mo	10
T ₂ N ₁ Mo	07
Stage IV	
T ₃ N ₂ Mo	03
T ₃ N ₃ Mo	03
T ₄ N ₂ Mo	01
T ₄ N ₃ M1	01
Histopathology	
Squamous Cell Carcinoma	23
Adenoid cystic carcinoma	01
Adenocarcinoma	01
Sites involved	
Oropharynx	11
Pharynx	08
Larynx	06

Table 2. Age distribution

Male	18
21-30 Year	01
31-40 years	02
41-50 years	04
51-60 years	08
61-70 years	03
Female	07
31-40 years	01
41-50 years	05
51-60 years	01

Table 3: Aetiological factors

Aetiological factors	n=	%age
Smokers	18	72
Betel chewing	4	16
Naswar	2	8
Alcohol	1	4

Table 4. Symptoms at diagnosis

	n=	%age
Pain	14	56
Dysphagia	12	48
Hoarseness	8	32
Epistaxis	4	18
Otagia	3	12
Trismus	2	8

Table 5. Complications

Complications	n=	%age
Dysphagia	24	96
Pain	23	92
Mucositis	23	92
Xerostomia	22	88
Trismus	4	16
Ototoxicity	3	12
Osteoradionecrosis	2	8
Neutropenia	2	8
Gastroesophageal reflux	2	8

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