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## **Induced Oral Mucositis - its Responsible Factors and their Influence**

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### **ABSTRACT:**

The main aim of this review is to determine the factors which aggravate oral mucositis. Oral mucositis is the condition which is mostly observed as the side effect of chemotherapeutic drugs. The risk factors which aggravate oral mucositis in oral cancer patients include time of administration of chemotherapeutic agent, wearing braces/dentures, oral hygiene and smoking. These are reviewed. By finding the aggravating factors of induced oral mucositis, the treatment efficiency can be improved and results in increase in treatment success rate.

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### **Introduction:**

Oral mucositis is a hematological complication of chemotherapy and radiotherapy. Mucositis is a common complication of cancer therapy, which significantly affects the mucosa. Oral mucositis refers to the oral erythematous and ulcerative lesions commonly observed in patients undergoing cancer therapy. Oral mucositis results from injury to epithelial cells that line the oral cavity. The damage causes changes ranging from mild atrophy to severe ulceration. It is characterised by pain, odynodysphagia (painful swallowing in the mouth), dysgeusia (distortion of sense of taste) and consequent dehydration and malnutrition. [1],[2],[3],[4],[5].

The term oral mucositis was coined in late 1980s, to explain the inflammation of oral mucosa caused by chemotherapy and radiotherapy. The incidence and severity of mucositis will vary from patient to patient. It will also vary from treatment to treatment. [6],[7]

There are risk factors which are found to be responsible for oral mucositis. They include history of oral lesions, smoking habits etc. The purposes of this review is to determine if there were differences in the incidence, severity, and time to onset of CTX-induced mucositis in oncology outpatients who wore dental appliances, had a history of oral lesions, had varying oral hygiene/care practices, and had a history of smoking and those who did not. [8],[9],[10]

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### **Oral hygiene as an aggravating factor:**

Lack of oral hygiene is an aggravating factor of oral mucositis. The patients who brushed their teeth 3 times/day presented mucositis in only 26.7% of cases, against those who did not brush, or brushed only once a day (65.9% and 68.4%) [11]. The patients with high plaque (PI) and gingival (GI) indices during chemotherapy presented a higher percentage of mucositis (77.4% and 65.7% respectively) against those who had little or no visible plaque. [12],[13]

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### **Denture as an aggravating factor:**

Lesions of the oral mucosa associated with wearing of removable dentures may represent acute or chronic reactions to microbial denture plaque, a reaction to constituents of the denture base material, or a mechanical denture injury. The lesions constitute a heterogeneous group with regard to pathogenesis. They include denture stomatitis, angular cheilitis (inflammation of the lips), traumatic ulcers, denture irritation hyperplasia, flabby ridges, and oral carcinomas. In one of the articles, Out of 322 patients, 45% of the mucositis patients wore braces/dentures, were showing symptoms of oral mucositis. In another article, out of 235 patients, 54 (30%) of denture users showed symptoms of oral mucositis. Fissured tongue was the most common lesion and it was seen significantly higher in patients with denture. [14],[15]

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### **Chemotherapeutic drugs as an aggravating factor:**

Chemotherapeutic drugs are a common and significant aggravating factor responsible for oral mucositis. It will result in dose reductions and interruptions in patients undergoing chemotherapy or radiotherapy. This is stated in all the articles. In one of the articles, out of 50 patients, 48 developed lesions in oral mucosa due to their intake of chemotherapeutic drugs. Oral infection was prevalent in 46% (391/850) of all cancer patients, with the highest rate in

oral and maxillofacial cancer group (67%), followed by Haematological malignancy group (58.6%) and other groups (ranging from 43.3% to 35.3%) [16],[17],[18],[19].

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### Smoking as the aggravating factor:

Habits such as smoking, alcohol consumption causes damage to oral mucosa resulting in oral mucositis. In one of the articles, In 235 patients, oral mucosal lesions were recorded. 268 (25.7%) of the patients had history of smoking and 42 (4%) were alcoholics. In another study, it was stated that the people with history of smoking had at least one oral mucosal lesion. Smoking is associated with redness of oral mucosa, leukoplakia. Of the 500 patients, 77% were in the 25-44 years old age group and 84% were married. The mean age of initiation of alcohol misuse was 34 years. In addition to alcohol, 72% smoked tobacco and 96% used other psychoactive substances. The mean alcohol use duration was 12.6 years. A total of 25% of the study group had at least one OML. [20],[21],[22]

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### Conclusion:

Although not significant, there were interesting differences in the time to onset across the suggested risk factors (e.g., patients who had visited a dentist or had their teeth professionally cleaned within 2 months before beginning CTX developed mucositis 7.4 and 10.6 days sooner, respectively, than patients who did not). These findings suggest that risk factors for the development of CTX-induced mucositis are not as simple and direct as clinicians might believe.

There was 32% incidence of chemotherapeutic drug induced mucositis. There were no significant differences found in severity or time of onset of mucositis, oral hygiene.

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