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Epidemiological survey of Nicotine induced oral cancers

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Abstract

In this study, epidemiological survey on nicotine induced oral cancer on its various prospective is carried out. Comparative studies of various risk factors that develop oral cancer in patients like age, sex, location etc. are studied. In the present study, three different factors were used to study the therapeutic effect of by measuring the outcomes like ADR, DI, Clinical efficacy produced by the drugs. Study found that ADR and symptomatic changes were less in case of combination chemotherapy compared to mono chemotherapy.

Keywords: Emetic toxin, Enterotoxin, Fermented rice noodle.

Introduction

It is estimated that one in three people will develop cancer at some stage in their lives and about one in four will die from the disease. It is estimated that around 30% of cancer death are attributable to tobacco use. Epidemiological studies suggest that there is increased relative risk of 4.9% for smokers.[1] The Indian scenario of lung cancer was found to be 90% in the heavy smoking cases.[2]

Smoking cigarettes, pipes and cigars is a risk factor for all cancers associated with the larynx, oral cavity and esophagus.[3] Over 90% of patients with oral cancer use tobacco by either smoking or chewing it. Epidemiological studies reveal that heavy smokers have laryngeal cancer mortality risks 20 to 30 times greater than non smokers.[4]

Objective

- To assess nicotine induced oral cancer.
- To assess and make a comparative study of risk factors for the development of oral cancer.
- To assess the use of combination therapy.

Methodology

This study was conducted in Malabar Cancer Centre, Kannur and Caritas Cancer Research Institute, Thellakom, Kottayam.

Study criteria

Patients with oral cancer, aged between 20-70 years were included in the study and categorized them as nicotine users and non users.

Patients with other co-morbidities and pregnant ladies were excluded from study.

Source of data

Data for this study was collected from case notes, case records, prescriptions, treatment charts and laboratory data of patients.

Study design

A case control study was carried out in 104 patients. The study was conducted over a period of one year from November 2004 to October 2005.

Method of data collection

The data was collected by using a data collection form, which includes the patient's demographic data, therapeutic data, the laboratory data, clinical outcomes and other factors like family history and other trigger factors.[5]

Result Analysis

The results were analyzed by statistical method namely chi-square test, by comparing the impact of nicotine on inducing cancer in tobacco users and non users.

Result and Discussion

Total number patients were divided in to four groups.

Group 1: No tobacco chewing with cancer.
Group 2: Tobacco chewing with cancer.
Group 3: No tobacco chewing, no cancer.
Group 4: Tobacco chewing, no cancer.

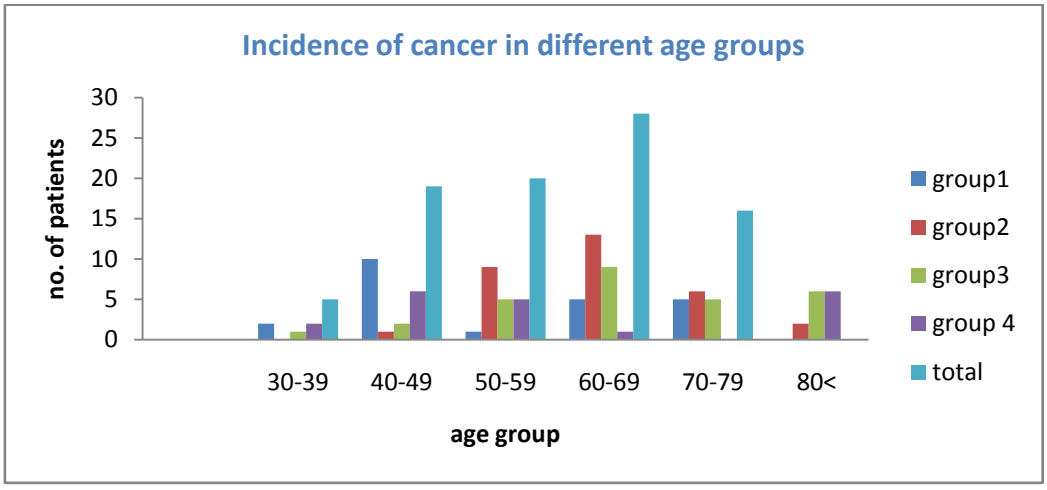

Figure 1: Incidence of cancer in different age groups

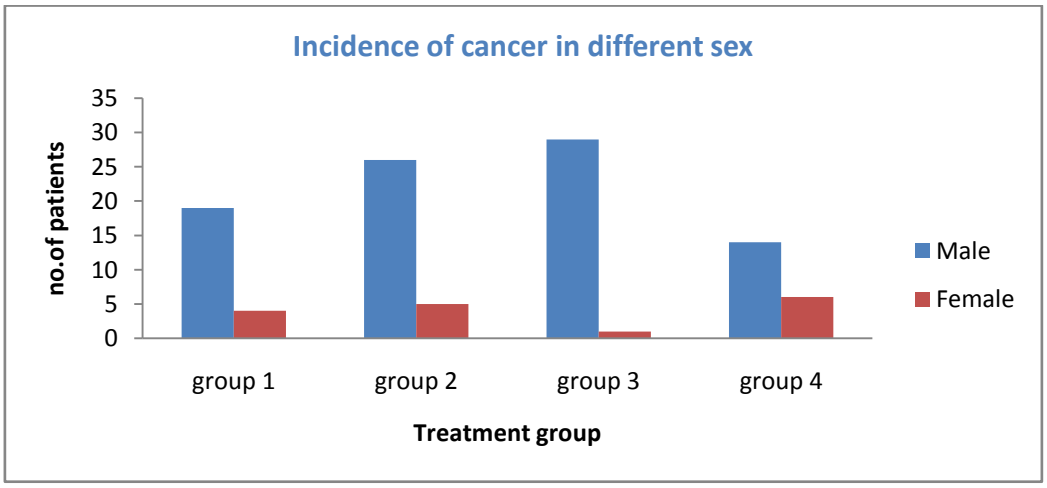

Figure 2: Incidence of cancer in different sex

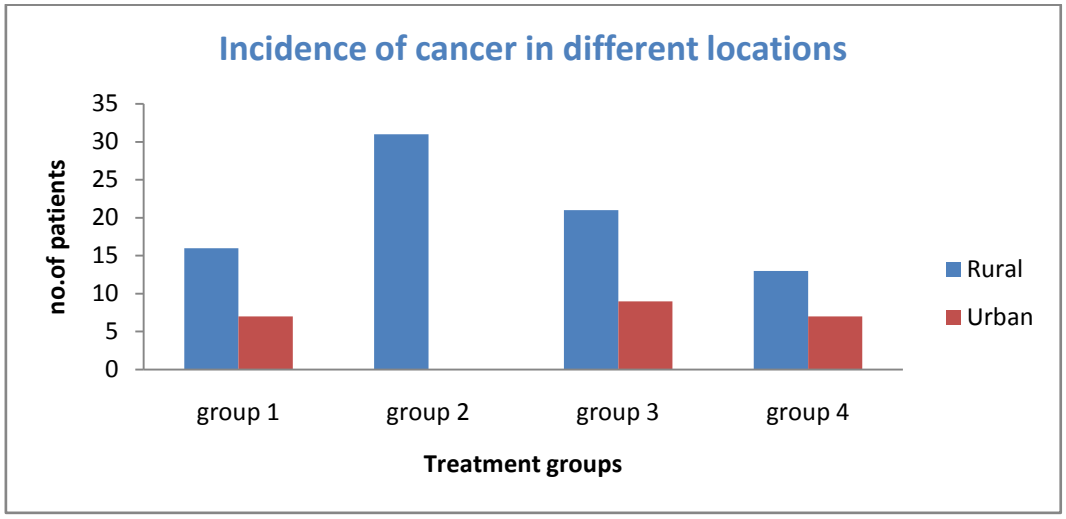

Figure 3: Incidence of cancer in different locations

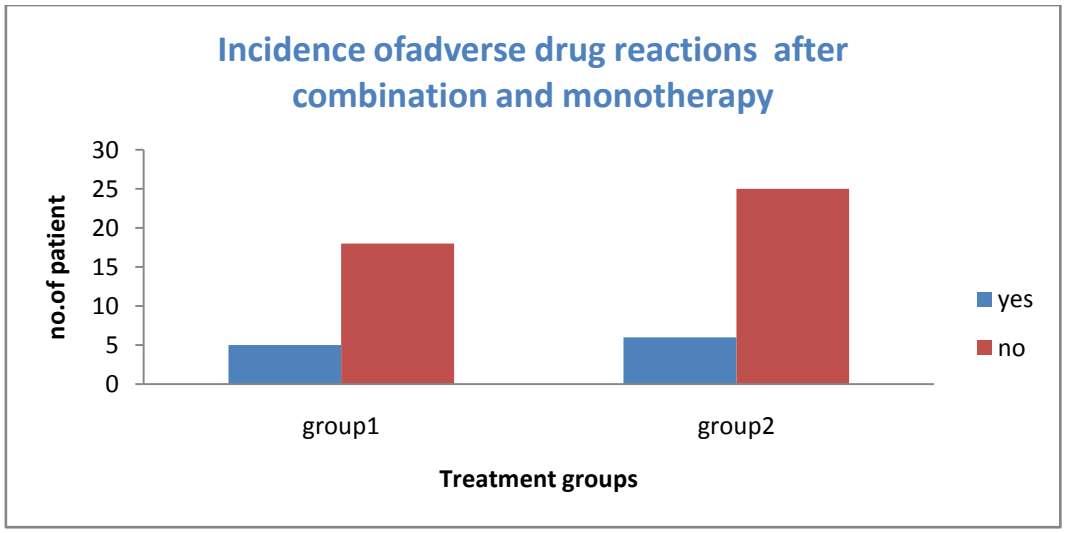

Figure 4: Occurrence of Adverse drug reactions after combination and monotherapy

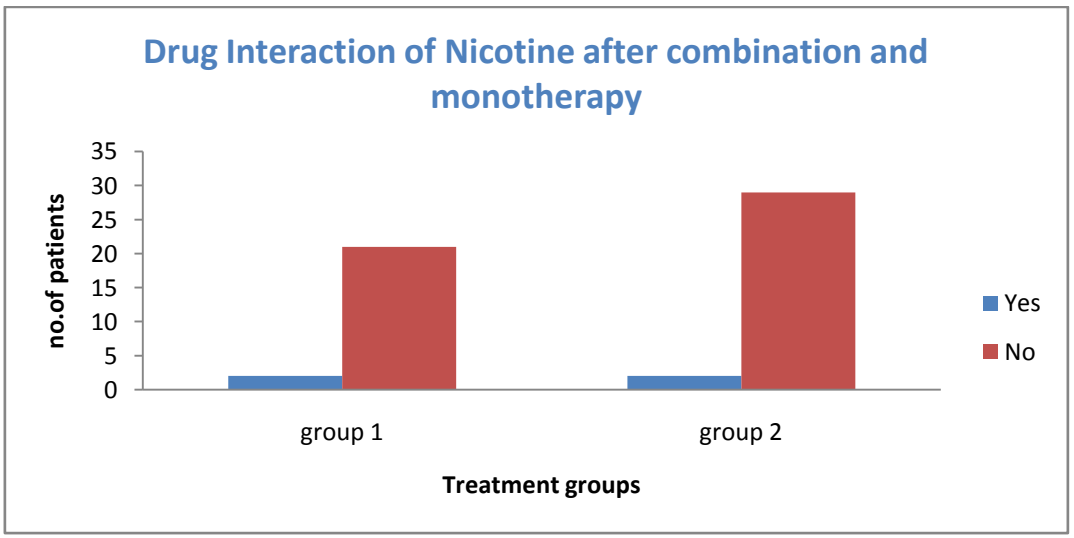

Figure 5: Drug Interaction of Nicotine after combination and monotherapy

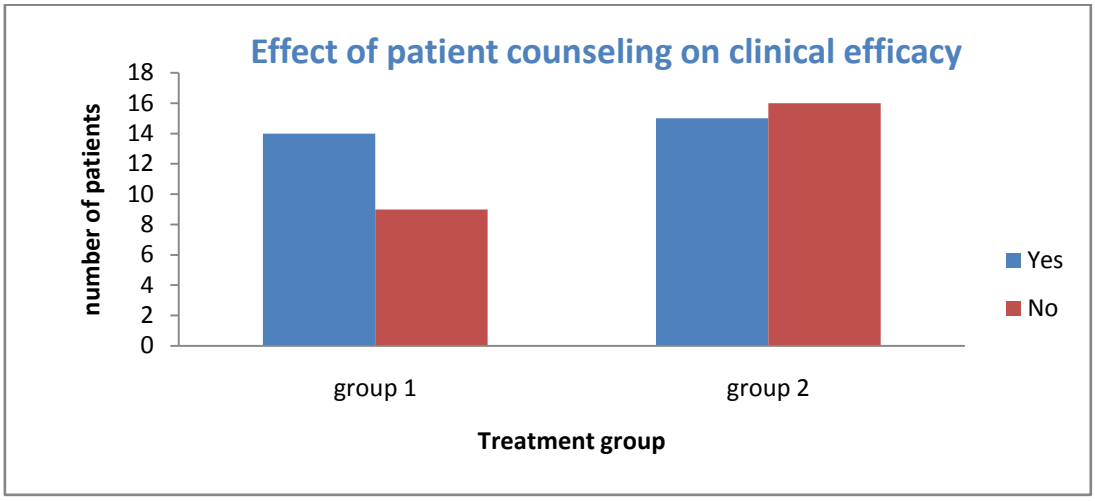

Figure 6: Effect of patient counseling on clinical efficacy

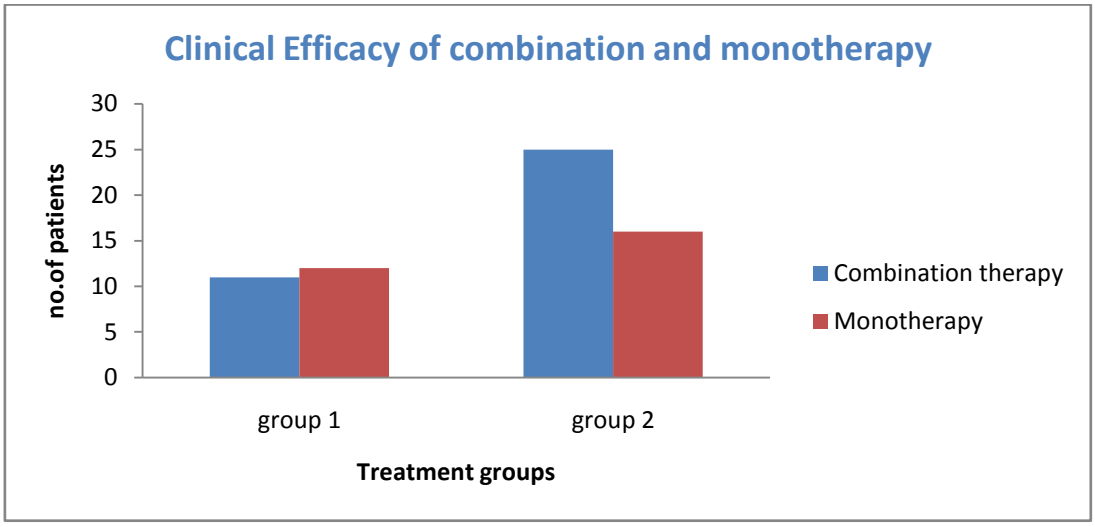

Figure 7: Clinical Efficacy of combination and monotherapy

Interpretation

• Patients of age 60-69 years were more prone to get oral cancer.

• The most of oral cancer patients were males.

• Majority of patients having oral cancer were coming from rural areas.

• The drug interaction and ADR in the patients were reduced after combination therapy and patient counseling.

• The clinical efficacy and prognosis were improved after combination therapy and patient counseling.

Discussion

The study was aimed at epidemiological survey of cancer induced by chewing of tobacco. It was found that majority of adult male patients having this cancer were due to consumption of tobacco, and in few females it might be due to environmental pollution or passive smoking.

The combination therapy had lesser incidence of ADR and drug interaction and more clinical efficacy than that of doubled dose of monochemotherapy (Figure 6-7). The ADR produced during the therapy were minimized to extend by patient counseling and proper use of medication. Our findings are in accordance with that of Chiang, 2013 that tobacco contributes to oral cancer by the promotion of cell migration and invasion, associated with signaling pathway.[6]

Side effects of chewing tobacco are stained teeth, bad breath, sores on the gums and in the mouth that are stubborn to heal and other dental problems. Some of the effects on dental health are escalated by the sugar that is

added to the tobacco during processing to improve the taste. The habit can also affect a person's ability to taste and smell. After prolonged use there is a risk of developing oral cancer which may become apparent through a sore that does not heal, a white patch, prolonged sore throat, difficulty chewing, or a feeling there is a lump in the throat (Figure 1&2). A person should stop chewing tobacco to reduce the side effects and health risks associated with it. Chewing or smokeless tobacco contains nicotine a very addictive substance. The nicotine gets into the bloodstream through absorption in the mouth and is slower acting than getting nicotine from smoking a cigarette. The most serious health risk associated with the smokeless habit is cancer (Figure 3).

Conclusion

It is concluded that major risk factor of the oral cancer was the consumption of tobacco (chewing of tobacco) and combination chemotherapy for oral cancer was more effective than mono chemotherapy.

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