



# HEAD AND NECK CANCER ASSOCIATION WITH ALCOHOL

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## ABSTRACT

**BACK GROUND:** Head and neck cancer is the common cancer in India occupying one-third place of all cancers. Due to more consumption of alcohol the parts like oral cavity, pharynx and larynx have more probability to be affected with cancer.

**AIM:** Evaluated the association among gender, alcohol consumption and head and neck cancer.

**MATERIALS AND METHODS:** Between June 2011 and January 2013, 103 cases diagnosed with head and neck cancer were investigated. All subjects were interviewed and examined according to the standardized protocol.

**RESULTS AND DISCUSSION:** Out of 65 males, 45 (69.23%) patients are alcohol drinkers, 19(29.23%) are non-drinkers and only one is ex drinker. But in females the ratio is different, drinkers are only one and non-drinkers are 37 (97.37%). Out of all non-drinkers are high with 56 (54.37%) followed by drinkers with 44.66% with its odds ratio and P value. It showed significant results.

**CONCLUSION:** In conclusion among alcohol drinkers, increasing consumption of alcohol was associated with increased risk of head and neck cancer in both men and women.

**KEY WORDS:** pharynx, larynx, oral cavity and alcohol.

## INTRODUCTION:

Head and neck cancer is the commonest cancer in India and occupies one-third place of all cancers. (Sankaranarayanan R et al.,1998)(Sanghvi LD et al., 1989)(Takiar R et al.,2010). In certain head and neck cancers particularly cancers of the oral cavity, pharynx and larynx, Alcohol consumption is observed as a major risk factor (Baan R, et al.,2007). There are approximately 300,000 oral cancers, 142,000 pharynx cancers and 157,000 larynx cancers been diagnosed each year (Ferlay J et al., 2008). Most adults drink low amounts of alcohol regularly, while many other people do not drink at all. In general, men drink alcohol more often in larger amounts than women. Alcohol consumption is an important known cause of cancer and also leads to many other health problems. Alcohol use has consistently been indicated as a risk factor for head and neck cancer (Sturgis EM et al., 2004). Few epidemiological studies have compared the association of alcohol and head and neck cancer in men to that in women (Blot WJ,et al.,1988) (Franceschi S,et al., 1994)(Hayes RB et al.,1999). National Toxicology Program of the US Department of Health and Human Services lists consumption of alcoholic beverages as a known human carcinogen. Alcohol has ethanol, which is the primary component out of two chemicals, which damage the DNA of healthy cells. It gives weight gain and also leads to cancer risk.

The International Agency for Research on Cancer has classified alcohol as a Group 1 carcinogen since 1988 (IARC 1988). It is the highest risk category and Alcohol is found to be the strongest determinant causing cancer of the larynx, with the high risk profile being quite similar to that seen for cancers of the oral cavity, pharynx, and esophagus (IARC 1988). More recent reviews by IARC and other agencies confirmed that drinking alcohol causes cancer (Boyle, P et al.,2003) (IARC 2012). Recently over time drink may increase the head and neck cancer. People who consume 3.5 or more drink per day are at a great risk of getting two to three times of HNC than non drinkers (Baan R,et al.,2007).The risk factor is substantially higher with consuming of alcohol and tobacco (Hashibe M et al., 2009).

## MATERIALS AND METHODS:

In this epidemiological study conducted between June 2011 and January 2013, 103 cases diagnosed with head and neck cancer were investigated. All subjects were interviewed and examined according to a standardized protocol. The Information was procured from the Mahatma Gandhi cancer Hospital, Visakhapatnam, Andhra Pradesh India. Statistical analysis is done with Medcalc software.

**Table 1:Drinking habit and gender**

Drinking habit	Male (%) (N=65)	Female (%) (N= 38)	Total (%)	Odds Ratio	95% Confidence Interval	P Value
Drinkers	45(69.23)	1(2.63)	46(44.66)	8.1250	3.7622-19.367	<0.0001*
Non drinkers	19(29.23)	37(97.37)	56(54.37)			
Ex drinkers	1 (1.54)	0	1 (0.97)			

\*p<0.01- Significant; \*\*p<0.02 -moderately Significant; \*\*\*p<0.005-Highly Significant; NS-not significant.

**Table 2 : Distribution of Drinking habits**

Habit	Mean	Std. Error	95% Confidence Interval	P value
Drinking habit Drinkers(n=46)	1.3775	0.06432	1.2500 to 1.5049	<0.001*
Non drinkers (n=56)	1.4398	0.04956	1.3416 to 1.7379	

p< 0.01- Significant; \*\*p< 0.02 -moderately Significant; \*\*\*p< 0.005-Highly Significant; NS-not significant

**DISCUSSION:**

In this study alcohol association with head and neck cancer was observed and also investigated the association between alcohol and head and neck cancer in men and women separately in accordance with previous evidences (Gronbaek M et al.,1998)(Kjaerheim K,et al.,1998).Over all men are 2–7 times more effected than women (Parkin DM et al., 2005). Another report explains that compared to women throughout the world, men are more addicted to drinking. So, gender gap is evident in all areas of the world (Degenhardt, L et al.,1997).

In the above table 1, the data of drinkers and non-drinkers, ex drinkers has been presented. Out of 65 males, 45 (69.23%) patients are drinking alcohol, 19(29.23%) are non-drinkers, and only one is ex drinker. But, in females the ratio is different that drinkers are only one and non-drinkers are 37 (97.37%). Out of all, non-drinkers are high with 56 (54.37%) followed by drinkers with 44.66% and its odds ratio and the P value showed significant results. In this overall study, alcohol consumption was significantly associated with increased risk of cancer for both women (P value<0.001) and men (P value<0.001). Another report explains long usage of alcohol consumption and its effects, which regulate the gender roles (Joffe, A. H 1998).

There was a significant association between alcohol drinking and the risk of HNC in this study. Another report shows evidence that many patients with head and neck cancers have a history of heavy alcohol consumption (Mayne ST et al., 2006). Cumulative exposure of high level of alcohol drinking was significantly associated in a dose-response relationship. These findings are also consistent with results of previous studies (Chyou PH, et al.,1995)(L Addala et al.,2012). One review found that people consuming four or more drinks (where one drink has around 1.5 units of alcohol) a day had about five times chances of getting mouth and pharynx cancers (Tramacere, I, et al.,2010). A study was conducted in Uruguay and was observed that the highest odds ratios were observed in oral cavity cancer among pure drinkers of alcoholic beverages (De Stefani E, et al., 1998).

According to the present study, non-drinkers also show an increased risk of head and neck cancer 95% confidence interval (95% CI) 3.76-19.3)(P value<0.001) and only one ex drinker is available. Some studies suggest that elevated risk for head and neck cancer, even after 10 years after use in former drinkers (Castellsague X et al., 2004). After a person stops drinking, the risk for developing head and neck cancer doesn't seem to decrease for many years. In addition, alcohol consumption has shown to be associated with increased odds of Oro pharyngeal cancers (OPC) among never smokers. Another study states that the major risk factor for OPC in never smokers was alcohol consumption, with an odd 'ratio three-fold higher in drinkers than non-drinkers (Fioretti et al.,1999).The more alcohol is consumed the more risk of alcohol-related cancers (Corrao, G., et al., 2004). So the less alcohol consume less the risk of these cancers. For heavy drinkers, it is not too late to start cutting down. Scientists have found that the risk of mouth, throat and esophageal (food pipe) cancers gradually reduces in people who have given up drinking compared to those who continue (Rehm, R., et al., 2007).

**CONCLUSION:**

In conclusion, among alcohol drinkers, increasing consumption of alcohol was associated with increased risk of head and neck cancer in both men and women. According to this study the conclusion will be a positive association between gender alcohol drinking and head and neck cancer mortality. Basing on the existing evidence, however, it is observed clearly that the most direct path to reduce the cancer burden associated with drinking is to reduce the level of intake of alcohol. Because a solid portion of alcohol-induced oral, pharyngeal and laryngeal cancers result from heavy drinking.

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