

How Does Alcohol Induce Oral Cancer?

TORU NAGAO, D.D.S., D.M.Sc., Ph.D.
Department of Oral and Maxillofacial Surgery
Okazaki City Hospital

< Summary >

It is generally accepted that alcohol can have beneficial effects when consumed in moderation, However excessive alcohol consumption is harmful. Recently it has been demonstrated that in some people who consume alcohol, a mutant ALDH2 allele contributes to diminished activity of the enzyme, dramatically increasing the risk for esophageal cancer among Japanese alcoholics. In order to elucidate the mechanism of development of oral cancer we examined the generation and subcellular distribution of protein adducts. The results of oral biopsy specimens show expression of acetaldehyde (AA), the first metabolite of ethanol and end products of lipid peroxidation, malondialdehyde (MDA), 4-hydroxynonenal (HNE) and alcohol induced CYP2E2. Further studies will be needed to elucidate the connection between AA, AA-protein adducts and cancer risks associated with interactions with individual factors such as alcohol consumption, smoking and oral environments (bacteria and candidal infections). Further outcomes are expected related to cancer chemopreventative effects resulting from the elimination of carcinogenic acetaldehyde by way of the cysteine of the glutathione precursor.