Acetaldehyde in alcohol -- no longer just the chemical that causes a hangover

March 20 2009

A new study published today in the journal *Addiction* shows that drinking alcohol is the greatest risk factor for acetaldehyde-related cancer. Heavy drinkers may be at increased risk due to exposure from multiple sources.

Acetaldehyde is ubiquitous in daily life. Widely present in the environment, it is inhaled from the air and tobacco smoke, ingested from alcohol and foods, and produced in the human body during the metabolism of alcoholic beverages.

Research indicates that this organic chemical plays a significant role in the development of certain types of cancers (especially of the upper digestive tract), and it is currently classified as possibly carcinogenic by the International Agency for Research on Cancer of the World Health Organization. New research from the Centre for Addiction and Mental Health (CAMH) in Toronto and the Chemical and Veterinary Investigation Laboratory Karlsruhe (CVUA) in Germany recently provided the necessary methodology for calculating the risk for the ingestion of alcoholic beverages.

The research team found that risk from ingesting acetaldehyde via alcoholic beverages alone may exceed usual safety limits for heavy drinkers. Their risk assessment study found that the average exposure to acetaldehyde from alcoholic beverages resulted in a life-time cancer risk of 7.6/10,000, with higher risk scenarios (e.g. contaminations in unrecorded alcohol) in the range of 1 in 1,000. As such, the life-time

cancer risks for acetaldehyde from ingestion of alcoholic beverages greatly exceed the usual limits for cancer risks from the environment.

The team noted, however, that this risk is compounded by the addition of acetaldehyde exposure from different sources. "The problem with acetaldehyde has been that although it has been recognized as toxic by Health Canada some years ago, most risk assessments to date were based on one source of exposure only" explained Dr. Jürgen Rehm, the lead scientist of the Toronto group and head of the Public Health and Regulatory Policies section at CAMH. "This has led to a negligence of the overall risk."

For example, in Toronto, even though there are limits for air exposure of acetaldehyde set by the responsible Public Health agency, these limits have been surpassed in the past. Alone, the risks associated with surpassing limits of acetaldehyde from the air may not yet be alarming, but for heavy drinkers and smokers, it adds to the acetaldehyde levels already received from these sources. This overall risk then surpasses established safety limits.

Based on their study the scientists of CAMH recommend:

• That the classification of acetaldehyde with respect to cancer be re-examined, incorporating new evidence which points to an additional cancer risk to humans.
• That a further risk assessment should take into consideration all sources of exposure from this substance.
• That the risk for cancer stemming from acetaldehyde from alcoholic beverages is recognized, and necessary preventive steps are taken to reduce the acetaldehyde content in alcoholic beverages.
• That the overall level of acetaldehyde exposure be minimized to the lowest level technically possible.

Source: Wiley (news : web)