

Tobacco smoke and alcohol harm liver worse as combo

February 3 2009

Exposure to second-hand smoke and alcohol significantly raises the risk of liver disease, according to researchers at the University of Alabama at Birmingham (UAB).

The finding adds to mounting evidence that tobacco smoke and alcohol are worse for health as a combination, beyond the individual exposure risks, said Shannon Bailey, Ph.D., an associate professor in the UAB Department of Environmental Health Sciences and a co-lead author on the study.

The study is published in the journal *Free Radical Biology and Medicine*.

"This new data is a significant finding considering the combined effect of alcohol and cigarette smoke exposures, and the implications for public health," Bailey said.

The researchers reported on mice exposed to smoky air in a laboratory enclosure and fed a liquid diet containing ethanol, the intoxicating ingredient in alcohol drinks.

Mice exposed to second-hand smoke and who drank ethanol had 110 percent more liver fibrosis proteins than mice who breathed filtered air. Additionally, the twice-exposed mice had 65 percent more liver fibrosis proteins than mice who breathed smoky air but did not drink ethanol. Fibrosis is scar-like tissue in the liver that can lead to cirrhosis.

A study from the same UAB researchers in 2007 found the combination of second-hand smoke and ethanol increased the biological signs of heart disease in mice.

Second-hand smoke kills 53,000 nonsmoking Americans every year and is a known cause of lung cancer, heart disease, low birth weight and chronic lung ailments, according to the American Cancer Society.

Excessive alcohol consumption is ranked as the third-leading cause of preventable death in the United States, according to data collected by the Centers for Disease Control and Prevention.

The new study highlights the need to further probe negative biological impacts from single or multiple risky behaviors, and the compounding effect of environmental hazards such as second-hand smoke, said Scott Ballinger, Ph.D., an associate professor in the UAB Department of Pathology and a co-lead author on the study.

In addition to measuring liver fibrosis proteins in the study mice, the researchers looked at other signs of advancing liver disease like DNA damage, unhealthy cholesterol and oxidative stress.

Source: University of Alabama at Birmingham

Citation: Tobacco smoke and alcohol harm liver worse as combo (2009, February 3) retrieved 19 April 2024 from

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