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## Hookah smoking and lung cancer in the Kashmir valley of the Indian subcontinent.

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### Abstract

**BACKGROUND:** The literature about the causal relationship between lung cancer and tobacco smoking mostly concerns cigarettes. Hookah smoking is popular in the Kashmir valley of the Indian subcontinent, and is generally believed to be innocuous because of the passage of the smoke through water before inhalation.

**OBJECTIVE:** To determine the relationship of hookah smoking to lung cancer in Kashmir.

**MATERIALS AND METHODS:** In a case-control design, 251 cases of lung cancer and 500 age-matched controls were studied. A predefined questionnaire was administered through a personal interview regarding various smoking and dietary patterns and the results compared through statistical analyses.

**RESULTS:** There were 194 (178 current) ever-smokers amongst the cases and 223 (134 current) amongst controls. Smokers had a 4.2 times risk of lung cancer compared to non smokers (OR 4.23, 95% CI 3.0-5.96,  $p < 0.0001$ ). There were 120 hookah smokers amongst the cases and 100 amongst the controls and hookah smokers were nearly six times at risk for lung cancer as compared to nonsmokers (OR 5.83, (95% CI 3.95-8.60,  $p < 0.0001$ ). Cigarette smokers were commoner amongst cases (46 vs 64 in controls; OR 3.49, 95% CI 2.18-5.60,  $p=0.000$ ). The severity of smoking was associated with a higher risk of lung cancer (Chi-square 72.1,  $p < 0.000$ ). The practice of changing water of the hookah after each session proved non-existent.

**CONCLUSION:** Hookah smoking is associated with a significantly higher risk for lung cancer in Kashmiri population, with about 6 fold elevated risk as compared to non-smoking controls.

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