

Job strain associated with stroke in Japanese men

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Japanese men in high-stress jobs appear to have an increased risk of stroke compared with those in less demanding positions, according to a report in the January 12 issue of *Archives of Internal Medicine*.

Stress is considered a risk factor for stroke, according to background information in the article. Several models of job stress have been developed and provide clues as to how occupational factors may be modified to reduce risk. "The job demand-control model is the most often used occupational stress model," the authors write. "It posits that workers who face high psychological demands in their occupation and have little control over their work (i.e., those who have job strain) are at a greater risk of becoming ill than are workers with low psychological demands and a high degree of control in their occupation (i.e., those with low-strain occupations)."

Akizumi Tsutsumi, M.D., of the University of Occupational and Environmental Health, Fukuoka, Japan, and colleagues studied 6,553 Japanese workers (3,190 men and 3,363 women, age 65 and younger) who completed an initial questionnaire and physical examination between 1992 and 1995. The workers were followed up annually through phone calls, letters and interviews for an average of 11 years.

Over this time, 147 strokes occurred, including 91 in men and 56 in women. These stroke events occurred in seven men and 11 women with "low-strain" jobs (low job demand and high job control), in 23 men and 15 women with "active" jobs (high job demand and high job control), 33

men and 15 women with "passive" jobs (low job demand and low job control) and 28 men and 15 women with "high-strain" jobs (high job demand and low job control).

"Multivariable analysis revealed a more than two-fold increase in the risk of total stroke among men with job strain (combination of high job demand and low job control) compared with counterpart men with low strain (combination of low job demand and high job control) after adjustment for age, educational attainment, occupation, smoking status, alcohol consumption, physical activity and study area," the authors write.

"Although women with high-strain jobs tended to have a higher risk of stroke than women with low-strain jobs, no statistically significant differences were found for any stroke incidence among the job characteristic categories for women," they continue.

Among men, adjusting the results for other stroke risk factors slightly lessened the association between job strain and stroke. This suggests that the relationship may be mediated by chronic diseases such as obesity, high blood pressure, glucose intolerance and abnormal cholesterol levels. Other factors that may contribute include poor adaptation to stress, activation of the sympathetic nervous system (which controls involuntary reactions to stress) and inflammatory conditions.

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