Long-term cannabis users may have structural brain abnormalities

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Long-term, heavy cannabis use may be associated with structural abnormalities in areas of the brain known as the hippocampus and amygdala, according to a report in the June issue of Archives of General Psychiatry, one of the JAMA/Archives journals.

Conflicting evidence exists regarding the long-term effects of cannabis use, according to background information in the article. "Although growing literature suggests that long-term cannabis use is associated with a wide range of adverse health consequences, many people in the community, as well as cannabis users themselves, believe that cannabis is relatively harmless and should be legally available," the authors write. "With nearly 15 million Americans using cannabis in a given month, 3.4 million using cannabis daily for 12 months or more and 2.1 million commencing use every year, there is a clear need to conduct robust investigations that elucidate the long-term sequelae of long-term cannabis use."

Murat Yücel, Ph.D., M.A.P.S., of ORYGEN Research Centre and the Melbourne Neuropsychiatry Centre at the University of Melbourne, Australia, and colleagues from the University of Wollongong performed high-resolution structural magnetic resonance imaging on 15 men (average age 39.8 years) who smoked more than five joints daily for more than 10 years.

Their results were then compared with images from 16 individuals (average age 36.4) who were not cannabis users. All participants also took a verbal memory test and were assessed for subthreshold (below the standard of disease diagnosis) symptoms of psychotic disorders, which include schizophrenia and mania.

The hippocampus, thought to regulate emotion and memory, and the amygdala, involved with fear and aggression, tended to be smaller in cannabis users than in controls (volume was reduced by an average of 12 percent in the hippocampus and 7.1 percent in the amygdala). Cannabis use also was associated with sub-threshold symptoms of psychotic disorders. "Although cannabis users performed significantly worse than controls on verbal learning, this did not correlate with regional brain volumes in either group," the authors write.

Source: JAMA and Archives Journals