

Does khat chewing hurt the heart? A debate or fact?

Ayman El-Menyar

Director of Clinical Research at Hamad Medical Corporation, Associate Professor in Clinical Medicine at Weill Cornell Medical School, Qatar

I have read with an interest the article written by Aleemallah [1]. The author concluded that based on the available publications, there is no solid evidence that khat chewing has a worse effect on coronary artery disease or the heart directly. We disagree with this conclusion as there are plenty of studies on the harmful impact of khat chewing on the cardiovascular system (CVS) [2-9]. Here, I try to summarize some of the supporting literature. It is known that the main components of khat are cathinone (α -aminopropiophenone), cathine (norpseudoephedrine), and norephedrine, and all have a direct effect on the CVS [5]. The Gulf Registry of Acute Coronary Events study showed worse outcomes among khat chewers with acute coronary syndrome (ACS) [3]. Khat chewers had a higher risk of death, recurrent myocardial ischemia, cardiogenic shock, ventricular arrhythmia, and stroke compared to non-khat users. Cathinone in the khat leaves is similar to amphetamine and is more likely to have the exact mechanism of action in producing cardiomyopathy [5,10]. Chewing khat increases heart rate and blood pressure during the khat effective period time, and this contributes to the change in the circadian rhythm of acute myocardial infarction (AMI) presentation. Increased oxygen demands and peripheral and coronary vasoconstriction/spasm in such subjects may induce AMI in khat chewers. A study showed that khat chewing was significantly higher among AMI patients, and the heavy khat users had approximately >30-fold increased risk of AMI [2-4]. The quantity of khat used and the duration of each khat session may contribute to the risk of AMI. Khat was found to be an independent risk factor of ACS in a dose-response relationship [9]. Regular chewing of khat has a significant effect on the electrical activity of the heart. The rehabilitation therapy for khat addiction indicates an impact on the heart's electrical activity. An average increment of heart rate and an average reduction of heart rate variability (HRV), PR interval, RR intervals, and ST-segment were observed after chewing khat. Moreover, HRV was reduced by 19%, indicating the effect of khat on suppressing sympathetic and parasympathetic nerve actions [6]. These changes increase the risk of premature ventricular contraction and arrhythmia. Serious arrhythmias were found to occur in both cardiac and non-cardiac individuals during khat chewing, although they are more

prominent among cardiac patients [4-7]. Furthermore, a meta-analysis concluded that khat chewing could significantly affect the CVS by affecting the heart rate and blood pressure [8]. The associated comorbidities and smoking among khat chewers may exacerbate the unfavorable effects of khat on the CVS. Therefore, we agree that more extensive prospective studies are still needed to support this observation and the underlying pathophysiology. However, most khat chewers are not in favor of being involved in prospective and follow-up clinical trials. This requires a great effort from the authorities and media to increase public awareness, particularly in the teenagers and school curriculum.

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Correspondence to: Ayman El-Menyar, Director of Clinical Research at Hamad Medical Corporation, Associate Professor in Clinical Medicine at Weill Cornell Medical School, Qatar. E-mail: aymanco65@yahoo.com

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