

EDITORIAL

Editorial to "Transient electrocardiographic changes following smoking cannabis"

Giacomo et al reported the acute-phase electrocardiographic changes induced by cannabis smoking.¹ The notable finding in their case is that the T wave inversion in the inferior leads (II, III, aVf) was documented. As the authors mention in the discussion section, it is unclear whether the negative T waves in the inferior leads were related to drug ingestion per se or secondary to sympathetic activity and consequent hemodynamic effects. However, electrocardiographic changes induced by neurologic disorders or high sympathetic activity are better seen in the precordial and lateral leads.² On the other hand, multiple case reports of Brugada pattern ECG changes induced by cannabis smoking in V1-V3 have been reported.³ Therefore, this case report of inferior lead T wave abnormalities is particularly valuable. However, the reason why the T wave inversion occurred in the inferior leads is unknown. Unfortunately, the authors did not evaluate coronary artery stenosis in some way, such as coronary computed tomography angiography. The possibility of ischemic heart disease in this case seems low, because the patient was 16 years old and did not show any risk factors for ischemic heart disease. However, the possibility of coronary artery stenosis in the inferior region cannot be ruled out.

Apart from the health hazards of cannabis smoking, it is generally considered that the physical dependence of cannabis smoking is lower than that of cigarette smoking or alcohol dependence. Recently, cannabis use has been approved for widespread use in some countries. Cannabis use is forbidden in Japan, but the number of states of the USA where cannabis is approved is increasing. In Canada, cannabis use is legal. Moreover, in some parts of Europe, such as Spain, cannabis use is also legal. On the other hand, the medical use of cannabis has a long history. In China, cannabis has been used for medical purposes for 2700 years.⁴ Recently, clinical research about its use has progressed in the several medical fields such as cancer and pain control. Therefore, in the areas of cardiovascular medicine and emergency medicine, being aware of the accumulated toxicity data associated with cannabis smoking is very important.

Most papers regarding cannabis smoking are case reports, with limited original articles and systematic reviews. It is well known that, at a low or moderate dose, cannabis increases sympathetic activity and reduces parasympathetic activity, while at a high dose,

sympathetic activity is suppressed, and parasympathetic activity increases.⁵ An increase in sympathetic activity leads to tachycardia and increased cardiac output. This phenomenon might lead to a mismatch between increased myocardial oxygen demand and decreased oxygen delivery, which results in reversible P and ST or T wave changes,⁵ regardless of the presence of ischemic heart disease. On the other hand, suppressed sympathetic activity and increased parasympathetic activity lead to bradycardia and hypotension. If the series of electrocardiographic changes could be characterized by cannabis dosage, as with electrolyte imbalance (ie, relationship between tented T waves and hyperkalemia), this information would be useful for the initial and secondary response in clinical settings. However, with the present state of affairs, information about cannabis-induced electrocardiographic changes is limited. Giacomo et al have added another piece to this mosaic of information that may lead to a therapeutic strategy. Future prospective clinical studies and experimental studies of cannabis are desirable.

CONFLICT OF INTEREST

The author declares no conflict of interests for this article.

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[Correction added on 07 January 2020, after first online publication: In Reference section Giacomo M, Cristina L, Chiara Z, et al. has been amended to Mugnai G, Longo C, Zaltron C, et al.]

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