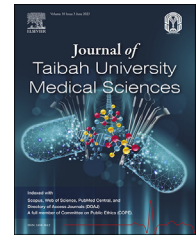




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Letter to the Editor

A new cause of the adrenal crisis in dental and medical patients: Opioid-induced adrenal insufficiency

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In healthy individuals, adrenaline and cortisol hormones are spontaneously released from the adrenal glands at a specific time of day to activate the body's functions. For example, a rise in the level of serum adrenaline and cortisol increases heart rate and blood pressure.¹ Normally, adrenaline and cortisol are discharged twice a day: at 7 a.m. in the morning and 4 p.m. in the afternoon.² The circadian rhythm that the body goes through in a 24-h cycle is triggered by the secretion of the melatonin hormone.³ So, the mechanism of sleep occurs when the melatonin hormones are secreted into circulation in the early hour of the night causing the heart rate and blood pressure to slow down.^{1,4} Waking up is initiated by the secretion of physiological hormones of adrenaline and cortisol.² However anxiety, stress, pain, and fear stimulate the secretion of adrenaline and cortisol into the circulatory system.^{1,5,6} Adrenaline and cortisol are also called stressful hormones discharged at the time of emergency to fully prepare the body either to fly or fight.⁴ Adrenal crisis is most precipitated by surgical stress or sepsis.^{6,7} Patients who suffered from acute adrenal crisis are usually known as chronic cortisol insufficiency (Addison's disease) or long-term steroids and have missed their medication.²

Signs and symptoms of acute adrenal crises are confusion, sweating, vomiting, diarrhoea, low blood pressure, tachycardia, loss of consciousness, convulsions, and ultimately circulatory collapse.⁴ The adrenal crisis might bring about by the stress of dental care.¹ Dental treatment or even thinking about going to an appointment with a dentist are considered for many patients as very stressful work. These patients need extra

secretion of adrenaline and cortisol in their circulation.⁴ On the other hand, the condition will get worse if the anxious patient has chronic adrenal insufficiency or long-term steroids.^{1,7}

Based on a current study by Donegan⁸ reported that patients who are on a high or chronic dose of opioids might be at risk of developing adrenal crisis. In the literature, it was reported that the chronic use of morphine resulted in toxicity to the adrenal gland.^{1,8} In addition to, treatment with cortisone was useful for the management of meperidine and morphine withdrawal symptoms in addictive men.⁴ Dental practitioners must be aware that an adrenal crisis might arise on a dental chair when treating patients receiving chronic opioids. So, dental treatment should be carried out with the minimum level of anxiety to reduce the body's need for increasing the level of cortisol and adrenaline in the blood. Paracetamol with codeine must be avoided in patients on chronic opioids.^{1,8}

Conclusion

Long-term use of opioids is likely to elicit an adrenal crisis. Dental practitioners should be vigilant when treating patients receiving chronic opioids to recognise and manage early signs of adrenal crisis. Stress-free dental treatment and avoidance of oral codeine in patients with a medical history of acute adrenal insufficiency may prevent the adrenal crisis on the dental chair.

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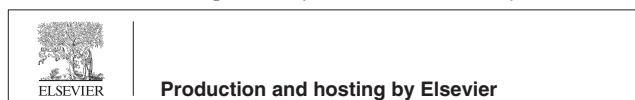
Conflict of interest

There are no conflicts of interest.

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GG conceived the idea, and wrote initial draft of the article, MSZ wrote a part of the article and critically revised the final draft. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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