Ranitidine-induced junctional rhythm in a pediatric patient: A rare and potentially harmful side effect

Sir,

In this day and age, ranitidine is still a commonly prescribed medication, especially in the emergency department.[1] It is an H_2-receptor antagonist that is commonly used for the treatment of gastritis, gastric and duodenal ulcers,[2] as well as gastroesophageal reflux disease in neonates.[3] There are a wide range of side effects attributed to H_2 blockers such as ranitidine and cimetidine, including nausea, vomiting, diarrhea, constipation, rash, pruritus, delirium, and gynecomastia. Rare and potentially harmful side effects such as cardiac arrhythmias, bradycardia, and hypotension have been reported and must be considered when prescribing ranitidine and other H_2 blockers.[1,4,5] Here, we would like to report an event that happened in our practice, regarding these cardiovascular side effects of ranitidine.

A 12-year-old male without relevant past medical history presented with pain in the cervical region with active and passive motion, malaise, odynophagia, and dysphagia to solids and liquids alike. On physical examination, a mass was palpated in the anterior cervical region, with tonsillar hypertrophy and a left peritonsillar abscess partially occluding the airway. Antibiotic treatment with clindamycin and ampicillin/sulbactam was initiated, and surgical drainage of the abscess was performed successfully. Postoperative treatment with ranitidine, acetaminophen, and metamizole was started, and 4 h after exiting the operating room, the patient presented malaise, dizziness, nausea, diaphoresis with bradycardia of 50–55 bpm, declining to 40–45 bpm at 7-h postoperative. There was no evidence of active bleeding or pain at any level, with other vital signs in the normal parameters. An electrocardiogram (EKG) was performed, showing junctional rhythm [Figure 1a].

Ranitidine was suspended, and intravenous fluids were increased. After 6 h, the patient's symptoms resolved, and the patient's heart rate increased to 60–65 bpm, improving to 70–75 bpm 24 h after suspending ranitidine, and a control EKG showed sinus rhythm [Figure 1b].

When prescribing common medications either as inpatient or outpatient, physicians must consider the full scope of side effects produced by those medications. In this case, a relatively commonly prescribed medication produced a potentially life-threatening side effect.

This side effect has already been described,[1,2,4] as well as its pathophysiology in the autonomic control of the heart because H_2 receptors are present in cardiac tissue, all medications that have that same mechanism of action can cause cardiovascular side-effects, and although not very common, they must be monitored for in the clinical practice.

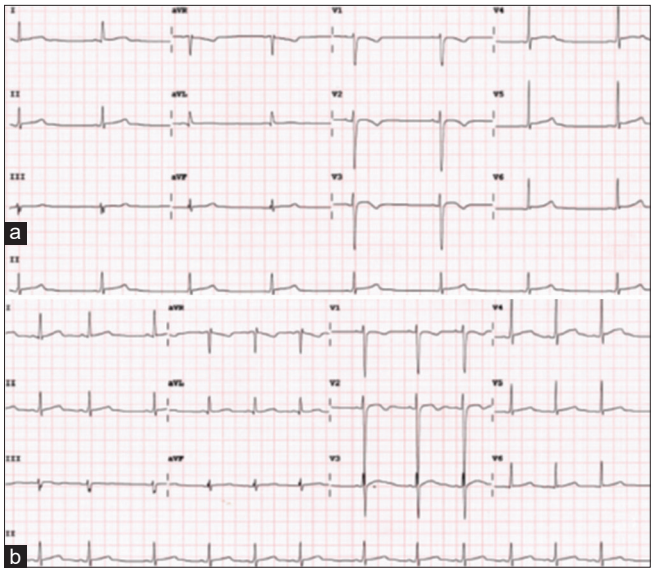

Figure 1: (a) 12-lead electrocardiogram showing junctional rhythm with a heart rate of 46 bpm, with abnormal and almost no discernible P waves 6 h after the administration of ranitidine. (b) 12-lead electrocardiogram showing sinus rhythm with a heart rate of 78 bpm 24 h after suspending ranitidine

Medication-induced cardiovascular side-effects are potentially life-threatening, especially in pediatric patients, therefore all clinicians, cardiologists included, must be suspicious of these entities in cases where the clinical picture does not correlate with the disease.

Informed consent

Parental consent was obtained for the publication of this article.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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REFERENCES

1. Dedeoglu E, Uzun A, Bayram B, Cevik E, Arslan D. An extremely rare side effect of ranitidine: Junctional rhythm. Hong Kong J Emerg Med 2011;18:232-4.
2. Yang J, Russell DA, Bourdeau JE. Case report: Ranitidine-induced bradycardia in a patient with dextrocardia. Am J Med Sci 1996;312:133-5.
3. Wheatley E, Kennedy KA. Cross-over trial of treatment for bradycardia attributed to gastroesophageal reflux in preterm infants. J Pediatr 2009;155:516-21.
4. Acoglu EA, Senel S. Severe bradycardia and hypotension possibly induced by ranitidine. Indian Pediatr 2018;55:708.
5. Nahum E, Reish O, Naor N, Merlob P. Ranitidine-induced bradycardia in a neonate-a first report. Eur J Pediatr 1993;152:933-4.

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