Thomson Reuters Master Journal List JOURNAL LIST

Search terms: AMERICAN JOURNAL OF EMERGENCY MEDICINE
Total journals found: 1

1. AMERICAN JOURNAL OF EMERGENCY MEDICINE Bimonthly ISSN: 0735-6757
W B SAUNDERS CO-ELSEVIER INC, 1600 JOHN F KENNEDY BOULEVARD, STE 1800, PHILADELPHIA, USA, PA, 19103-2899

1. Science Citation Index Expanded
2. Current Contents - Clinical Medicine

American Journal of Emergency Medicine 31 (2013) 634.e5

Contents lists available at SciVerse ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

Case Report

Angioedema after the first dose of metformin

Abstract

Metformin is a biguanide group antihyperglycemic agent that reduces the basal and postprandial glucose level and increases glucose tolerance in patients with type II diabetes mellitus. The rarely observed side effects are nausea, vomiting, diarrhea, and abdominal pain. In some hypersensitive patients, mild erythema has been reported. In this case report, angioedema developed immediately after 1 dose of metformin usage.

A 48-year-old woman was admitted to the emergency department with severe dyspnea. Her medical history revealed newly diagnosed diabetes mellitus (DM), and metformin (850 mg) was advised as treatment. Three hours after the first oral dose of metformin, she had increasing dyspnea. There was no medical history of hypersensitivity, and there was no other substance usage that could have caused the allergic reaction. Physical examination revealed an arterial blood pressure of 120/70 mm Hg, heart rate of 86 beats per minute, body temperature of 36.5°C, respiratory rate of 24 breaths per minute, and significant edema on the uvula and the tongue; no wheezing, rhonchus, or rale was observed upon respiratory system examination. The patient was given intravenous methyl prednisolone at 2 mg/kg (160 mg), pheniramine hydrogen at 45.5 mg, and subcutaneous adrenaline at 0.25 mg. She was also given 2.5 mg salbutamole 4 times and 1 mg budesonide 2 times every 20 minutes by nebulizer. Her symptoms regressed in the first 30 minutes. Within the 24-hour follow-up, there was no recurrence or any other symptoms, and the patient was discharged.

Metformin is a biguanide used for the treatment of type II DM and insulin-resistant metabolic syndrome; it reduces endogenous glucose production by the liver, and it increases the insulin sensitivity of the muscle and fat tissues [1,2]. Metformin supports hyperglycemia treatment without stimulating insulin release, hypoglycemia, or weight gain [2]. In addition, it has useful effects on lipids that increase cardiovascular risk [3]. Because of these advantages, it is widely used alone or in combination for the treatment of type II DM [4,5]. The most frequent side effects are nausea, vomiting, dyspepsia, abdominal pain, and diarrhea. These side effects disappear in 2 weeks after starting with a low dose of metformin and increasing gradually. Metformin also causes a metallic taste in the mouth, and with a long period of usage, it can cause B12 vitamin deficiency. In addition, it is known that the biguanides can cause lactic acidosis. Mild erythema has been reported in sensitive patients, but metformin allergy is particularly rare. Leukocytoclastic vasculitis and psoriasiform drug eruption are the 2 most common presentations of metformin allergy [6-8]. In our case, we observed angioedema caused by metformin. The pulmonary examination was normal in this case. It has recently been reported that there is no effect of metformin on innate airway hyperresponsiveness [9].

In conclusion, to the best of our knowledge, this is the first case of angioedema caused by metformin. We should be aware of this effect of metformin in the first dose, and patients should also be informed about the risk of an allergic reaction.

Dilek Atik MD
Fatih Büyükcam MD
Duygu Yılmaz MD
Bahar Işık MD
Ömer Faruk Demir MD
Department of Emergency Medicine, Dışkapı Training and Research Hospital, Ankara, Turkey
E-mail address: fatihbuyukcam@gmail.com

http://dx.doi.org/10.1016/j.ajem.2012.10.021

References

[1] Stumvoll M, et al. Metabolic effects of metformin in non–insulin-dependent diabetes mellitus. N Engl J Med 1995;333(9):550-4.
[2] Wiernsperger NF, Bailey CJ. The antihyperglycaemic effect of metformin: therapeutic and cellular mechanisms. Drugs 1999;58(Suppl 1):31-9 discussion 75–82.
[3] Wu MS, et al. Effect of metformin on carbohydrate and lipoprotein metabolism in NIDDM patients. Diabetes Care 1990;13(1):1-8.
[4] Fonseca V, et al. Effect of metformin and rosiglitazone combination therapy in patients with type 2 diabetes mellitus: a randomized controlled trial. JAMA 2000;283(13):1695-702.
[5] Di Cicco RA, et al. Rosiglitazone does not alter the pharmacokinetics of metformin. J Clin Pharmacol 2000;40(11):1280-5.
[6] Ben Salem C, et al. Rare case of metformin-induced leukocytoclastic vasculitis. Ann Pharmacother 2006;40(9):1685-7.
[7] Czarnowicki T, et al. Metformin-induced leukocytoclastic vasculitis: a case report. Am J Clin Dermatol 2012;13(1):61-3.
[8] Koca R, et al. Psoriasiform drug eruption associated with metformin hydrochloride: a case report. Dermatol Online J 2003;9(3):11.
[9] Shore SA, Williams ES, Zhu M. No effect of metformin on the innate airway hyperresponsiveness and increased responses to ozone observed in obese mice. J Appl Physiol 2008;105(4):1127-33.