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journal homepage: www.elsevier.com/locate/ajem**Glucagon for refractory asthma exacerbation: Friend or foe?***Keywords:*

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To Editor:

We read the article titled 'Glucagon for refractory asthma exacerbation: a case series' by Cavallari et al. [1] with great interest. They presented three patients' four emergency department (ED) visits with asthma exacerbations which were treated with intravenous (i.v.) glucagon. Effect of glucagon in asthma exacerbation is controversial as some studies found beneficial effects of i.v. glucagon [2] while the others not [3]. Although its efficiency has been showed on mice; there is not enough experience in humans [4]. In this line, we would like to emphasize some practical and controversial points regarding in the treatment strategies and responses to asthma exacerbation.

The first patient, 36 year-old man with history of asthma who admitted to ED active wheezing and chest pain was treated with 3 mg i.v. glucagon in addition to albuterol-ipratropium, methylprednisolone and i.v. magnesium and epinephrine. Additionally non invasive ventilation (NIV) was initiated and his respiratory status improved after NIV. His persistent wheezing despite NIV was treated with the second dose of epinephrine and albuterol. Patient seems to benefit from NIV and additional doses of epinephrine and albuterol instead of glucagon. However, results of NIV in asthma have been evaluated in a recent retrospective cohort study and NIV was found to be associated with a lower inpatient risk of dying (risk ratio, 0.12; 95% CI, 0.03–0.51) and shorter lengths of stay (4.3 d less; 95% CI, 2.9–5.8) than invasive mechanical ventilation (IMV) [5].

Second patient, 59 year-old woman with presenting with acute distress and audible wheezing was treated with albuterol-ipratropium, methylprednisolone, i.v. magnesium, terbutaline, metoclopramid and 2 mg i.v. glucagon. Despite she had benefit from these interventions; it is difficult to attribute these effects to glucagon because all drugs were initiated at the same time.

Third patient was admitted to ED twice. Glucagon treatment was initiated in both first and second ED visit of third patient in addition to standard treatment and NIV therapy. As mentioned in the article patient did not improve after glucagon administration at first visit. She stabilized with standard treatment plus glucagon at the second visit after vomiting and again raised doubts for glucagon treatment effectiveness.

Last, but not least, adverse effects of glucagon include nausea and vomiting. Up to 50% of the patients can suffer from nausea [2]. There is a potential risk of aspiration especially in patients with altered mental status due to asthma attack and in patients receiving NIV therapy during asthma attack.

Glucagon therapy with unclear effects may be alternative intervention in asthma attacks which does not resolve with standard treatment in ED. Therefore, we consider that further prospective clinical trials with more precise definition and criteria for glucagon use need to be evaluated.

Conflict of interest

Authors declare no conflict interest.

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Abbreviations: ED, emergency department; i.v., intravenous; NIV, non-invasive ventilation

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