CASE REPORT

LIFE THREATENING ANAPHYLAXIS WITH CO-AMOXICLAV DESPITE HAVING A PREVIOUS TOLERANT EXPOSURE TO THE ANTIBIOTIC

Huma Saleem, Sara Haider Malik

Department of Anaesthesia, Shaukat Khanum Memorial Hospital, Lahore, Ayub Teaching Hospital, Abbottabad-Pakistan

Co-amoxiclav is used as a routine prophylactic antibiotic in surgical procedures. We present a case of 61 years old lady came to outpatient clinic with a diagnosis of right sided lower alveolar tumour. A plan was made to proceed with a Right Marginal Mandibulectomy. She received Co amoxiclav as prophylactic antibiotic and was clinically uneventful. On further questioning there were many different occasions on which the patient had oral co amoxiclav with no complications or side effects. No known drug allergies or otherwise were documented. As a part of surgical antibiotic prophylaxis, Co amoxiclav 1.2 gm was given to patient at the time of induction. After the antibiotic administration patient started having bronchospasm with increased airway pressures and severe hypotension indicating anaphylactic reaction. The patient was resuscitated, recovered from the anaphylactic shock successfully and provided extended recovery in post anaesthesia care unit followed by High Dependency Unit for overnight monitoring. Every centre or ward that administers injectable antibiotics have to have a standard protocol for the management of allergy reactions. A timely fashion is mandatory to make the best use of the drugs available and emergency gadget ought to be in vicinity in case this type of state of affairs rise up.

Keywords: Co amoxiclav; Anaphylaxis; Alveolar tumour; Mandibulectomy

Citation: Saleem H, Malik SH. Life threatening anaphylaxis with co-amoxiclav despite having a previous tolerant exposure to the antibiotic. J Ayub Med Coll Abbottabad 2019;31(4 Suppl 1):680–2.

INTRODUCTION

Use of Co-amoxiclav as a surgical prophylactic antibiotic in routine procedures have led to the detection of increased number of antibiotic caused anaphylactic reactions even if the patient has been initially exposed to the antibiotic and has tolerated it well without any untoward clinical manifestations.[1] Owing to the widespread use of the B-lactam group of antibiotics including Co-amoxiclav if a previous exposure to the antibiotic is clinically well tolerated one is not usually prepared to find anaphylaxis to the drug and thus this might lead to a fatal outcome[2]. Reporting our experience of this kind of unanticipated anaphylactic reaction to antibiotics will help in emphasizing the need of having the emergency drugs and equipment ready and at hand to handle any misfortune comings.

CASE REPORT

We are reporting a case of a 61 years old lady who presented to outpatient clinic of Head and Neck Oncology with a diagnosis of right sided lower alveolar tumour. A plan was made to proceed with a Right Marginal Mandibulectomy. She was a known type II diabetic with good control on oral hypoglycaemic agent combination of thioglitazones and biguanides. She was a hypertensive with good control established on beta blockers and mild depressive disorder for which she was receiving citalopram as treatment.

On routine pre anaesthesia assessment it was found that she had a good functional capacity of more than four metabolic equivalents rendering her a low risk patient from anaesthetic perspective. Moreover, she had a history of general anaesthesia provided to her seven months back for the tissue diagnosis of the lesion in which she received Co amoxiclav as prophylactic antibiotic and was clinically uneventful. On further questioning there were many different occasions on which the patient had oral co amoxiclav with no complications or side effects. No known drug allergies or otherwise were accounted. An easy airway management was anticipated with the airway examination. The lady had normal vesicular breathing with no history of asthma or hay fever. Cardiovascular examination was unremarkable.

After arrival in operating room the patient was given standard monitoring as per AAGBI (Association of Anesthetists of Great Britain and Ireland guidelines). Two wide bore Intravenous accesses were taken. Anaesthesia was induced after pre-oxygenation with 100% oxygen with fentanyl 2mcg/ kg and propofol 1mg/kg and endotracheal intubation facilitated with atracurium 0.5mg/ml. Anaesthesia was maintained with 50% oxygen in air with sevoflurane to maintain a MAC (minimum alveolar concentration) of 1.2. As part of surgical antibiotic prophylaxis Co amoxiclav 1.2 gm was

given to patient. After the antibiotic administration patient started having bronchospasm with increased airway pressures and severe hypotension.

The operating room team was informed of the suspected anaphylactic reaction. Call for help was made with prompt administration of 100% oxygen and adrenaline incremental boluses of 10 mcg intravenous. Patient's bronchospasm and hypotension improved. Intravenous hydrocortisone and chlorpheniramine were also given as per guidelines. The surgical procedure was completed uneventfully. The patient was provided extended recovery in post anaesthesia care unit and then shifted to High Dependency Unit for overnight monitoring. Patient was de-escalated to routine care on the next day.

DISCUSSION

Co-amoxiclav is a mixture of amoxicillin (betalactam antibiotic) with clavulanic acid to triumph over beta-lactam resistance. Immunological responses to penicillin and other beta-lactam antibiotics are classified as 'immediate' which generally arise inside minutes to an hour, and 'non-immediate' reactions which can be non-immunoglobulin-E (IgE)-mediated and arise after an hour to several days after administration of the final dose. Penicillin is expected to reason 0.7–10% of all these instances.[1,3]

Anaphylaxis is described when signs involving two organ structures or hypotension develop in reaction to an allergen. Mast cellular degranulation and basophil activation play a chief function inside the pathogenesis of anaphylaxis. Cell mediators released following mast mobile degranulation reason vasodilatation, fluid extravasation, smooth muscle contraction and accelerated mucosal secretions. It can be IgE and non-IgE mediated.[4]

A history of no penicillin hypersensitivity in an affected person does no longer guarantee protection from an allergic response, as our patient obtained each oral and injectable co-amoxiclav within the current past. In a look at of 151 fatalities due to penicillin allergic reaction, 70% obtained penicillin formerly without any reaction. There's a multiplied hazard of anaphylactic reaction in patients who have been given penicillin formerly. It was discovered that antibodies due to preceding exposure to penicillin had been there within the blood and tissues and in such cases even a minute dose may additionally reason an explosive antigen antibody response. The impact of repeated publicity to penicillin presumably accumulates the antibodies, and thus indicates the maximum frequency of anaphylactic reactions in patients who were previously exposed to the drug group.[3,4]

The diagnosis in this situation was based totally on the improvement of the life-threatening signs and symptoms of anaphylaxis in the course of IV administration of co-amoxiclav. The on the spot onset of signs is traditional of an IgE mediated type I hypersensitivity reaction to a drug.[5]

The history of hypersensitivity to penicillin suggests that less than 80% of patients with an IgE mediated penicillin hypersensitive reaction lose their sensitivity after 10 years after their reaction but 1–16% of subjects may additionally emerge as re-sensitized after re-administration of a beta-lactam.[4] Elderly age group mixed with co-morbidities, including cardiovascular disorder and COPD increase a crucial chance thing for extreme anaphylaxis[6]. Our reported patient was elderly and the administered antibiotic was given after induction of general anaesthesia so the development of anaphylaxis could not be detected earlier. The anaphylactic reaction occurred in a setup where resuscitative facilities were readily available and appropriate steps were taken immediately to save the patient as per AAGBI guidelines for management of anaphylaxis. Fatalities of anaphylaxis typically outcomes from not on time or inadequate management of adrenaline dosage.[7]

In a study of 164 patients with fatal anaphylaxis, the median time from initial symptom to cardiorespiratory arrest changed into 5 minutes in iatrogenic anaphylaxis.[8] In another study of anaphylaxis related fatality, 25% of ninety-two people were given adrenaline before cardiac arrest. Injection delay of epinephrine is probably certainly one of numerous elements contributing to biphasic anaphylaxis, defined as symptom recurrence in a period of seventy-two hours (generally within 8 hours) after cessation of the preliminary signs and symptoms, without ongoing or further exposure to the anaphylaxis cause.[9]

One of the most striking features of these cases is the absence of a prior history of drug allergy. Indeed, in two cases co-amoxiclav had been administered in preceding weeks without adverse effect. It is routine medical practice to enquire about drug allergies prior to the prescription of antibiotics. It is also recognized that such histories may be unreliable especially as patient reported penicillin allergy often does not reflect the presence or history of allergic sensitization.[8,9] This has led to the development of algorithms for assessment of drug allergy that can include a combination of clinical history and skin/blood testing for sensitization.[9] Whilst such algorithms may be effective in risk assessing those patients with a history of suspected drug allergy, these cases highlight that a lack of history of a reaction, or indeed recent safe administration of the same medication is no

guarantee against subsequent fatal anaphylaxis. Such algorithms are unlikely to have prevented administration of co-amoxiclav or altered outcome in these cases.

There are not any absolute contraindications to epinephrine use in anaphylaxis.[5] The untoward side effects such as pulmonary oedema and other cardiovascular complications are usually related to the bolus administration and need to be weighed against the benefits conferred by the drug in settings of anaphylaxis as compared to any other drug in anaphylaxis algorithm.

A skin check can be considered in parental management of injectable beta-lactam antibiotic, especially penicillin despite the fact that the affected person has received the antibiotic in advance and highly more so ever in patients with excessive threat and notwithstanding a bad history for penicillin hypersensitive reaction which as evident from this case under discussion is not usually dependable. Every centre or ward that administers injectable antibiotics have to have a standard protocol for the management of allergy reactions. A timely fashion is mandatory to make the best use of the drugs available and emergency gadget ought to be in vicinity in case this type of state of affairs rise up. Exercising caution even in patients who do not provide history of recognized preceding allergy to the drug is of paramount importance.

Hypersensitivity reactions are unpredictable and might occur at any time, hence one must be organized trained and mock practices undertaken at regular grounds to handle any unanticipated drug response.

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Submitted: 17 June, 2019	*Revised: 12 july, 2019*	*Accepted: 16 October, 2019*

Address for Correspondence:
Huma Saleem, Consultant Anesthetist, Shaukat Khanum Memorial Hospital, Lahore-Pakistan
Email: humasaleem665@gmail.com