Enalapril induced idiosyncratic angioneurotic edema in a patient of renal amyloidosis

Sanjeev Bhoi
Sanjay Verma
Vineet Gupta
Ashish Goel
Enalapril-induced Idiosyncratic Angioneurotic Oedema in a Patient with Renal Amyloidosis

S Bhoi*, S Verma**, V Gupta***, A Goel****

Abstract

Angiotensin converting enzyme inhibitors (ACEi) have been used successfully in different cardiovascular as well as metabolic disorders. Common side effects are dry cough, first dose phenomenon, hyperkalaemia and agranulocytosis. Life threatening side effects of ACEi such as anaphylactoid reactions and angioneurotic oedema are rare and poorly recognised among emergency care providers. We report a 48-year-old male with renal amyloidosis developing angioneurotic oedema due to first dose of Enalapril.

Key words: Angioneurotic oedema, Angiotensin converting enzyme inhibitors, Idiosyncratic reaction.

Introduction

Angioneurotic oedema is a rare side effect of angiotensin converting enzyme inhibitors. This condition can be self-limiting as well as devastating. The idiosyncratic reactions such as acute respiratory as well as cardiovascular compromise due to ACEi are rare. This case report highlights early diagnosis and management of idiosyncratic angioedema, which could have otherwise been fatal.

Case summary

A 48-years-old male was detected to have hypertension with haematuria for which he was taking amlodipine for the past three months. Investigation revealed haemoglobin – 8.2 g/dl, total leucocyte count – 8,200 cells/ cu mm, erythrocyte sedimentation rate – 121 mm of fall in first hour, fasting blood sugar – 87 mg/dl, post-prandial blood sugar – 90 g/dl, blood urea – 63 mg/dl, serum creatinine – 2 mg/dl, serum Ca – 8.8 mg/dl, PO4 – 4 mg/dl, 24 hours urinary protein were 3 g/dl. Ultrasound revealed a normal sized kidney and kidney biopsy showed features of renal amyloidosis. The patient was put on 2.5 mg of tablet enalapril. After taking the first dose of enalapril, the patient developed dysphagia as well as swelling of face, lips, and anterior aspect of neck as shown in Figure 1 and 2. The rest of the general examination as well as systemic examination was normal. A clinical diagnosis of angioedema due to first dose of Enalapril was made. The patient was treated with intravenous
chlorpheniramine maleate and hydrocortisone. The patient recovered over a period of 8 hours and there was no recurrence of angioedema on follow-up.

Discussion

Angiotensin converting enzyme inhibitors (ACEi) have been used successfully in different cardiovascular as well as metabolic disorders. Common side effects of ACEi are dry cough, first dose phenomenon (hypotension), hyperkalaemia and agranulocytosis. Potentially life-threatening rare side effects are anaphylactoid reactions and angioneurotic oedema (AE). AE can occur with enalapril, ramipril, lisinopril, and even with angiotensin II antagonist. AE is a non-pitting oedema which is usually limited to skin and mucous membrane of face and upper aerodigestive tract. Earlier reports suggested incidence of AE to be 0.1 - 0.2% but a recent OCTAVE study involving over 25,000 hypertensive patients has reported an overall incidence of 0.68% of patients treated with enalapril. More recently, cases of AE were reported among stroke victims treated with tissue plasminogen activator who were concomitantly medicated with ACEi. AE in renal amyloidosis concomitantly treated with ACEi has not been reported. The aetiology of AE due to ACEi is non-immunogenic and usually non-idiosyncratic. Clinical symptoms of AE have been attributed to bradykinin (BK). BK is mainly metabolised by three metalloproteinases – angiotensin converting enzyme (ACE), X-pro aminopeptidase and carboxypeptidase N. The elevated BK levels results in vasodilation, increased vascular permeability and angioedema. Usually AE due to ACEi occurs within one week but can occur even months to years after initiating treatment. There are various clinical manifestation such as oedema of face, lips, tongue, swelling of neck, and dysphagia. AE could be self-limiting, but there are anecdotal case reports of recurrences which is not dose dependent. Life threatening cardiac arrest and acute airway compromise has been documented as acute idiosyncratic reactions. Unusual presentations such as isolated tongue oedema, penile oedema, visceral oedema and acute abdomen have been reported. Management of idiosyncratic angioneurotic oedema includes discontinuation of offending drug, institution of intravenous diphenhydramine, epinephrine and short acting steroids. If acute airway obstruction leads to life threatening respiratory compromise, an emergency cricothyroidotomy must be performed. Once even minor angioedema is attributed to angiotensin converting enzyme inhibitors, an alternative class of antihypertensive medication should be chosen.

Conclusion

Enalapril-induced idiosyncratic reactions are rare. Idiosyncratic reactions such as fatal cardiac as well as upper airway compromise can occur, hence early diagnosis and prompt treatment is of paramount importance in an emergency setup.

References