Current Trends in Internal Medicine
Elsuni I. Curr Trends Intern Med 8: 219.
www.doi.org/10.29011/2638-003X.100119
www.gavinpublishers.com

Case Report

Amlodipine-induced Arm Oedema

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Citation: Elsuni I (2024) Amlodipine-induced Arm Oedema. Curr Trends Intern Med 8: 219. DOI: 10.29011/2638-003X.100119

Received Date: 21 January 2024; **Accepted Date:** 03 February 2024; **Published Date:** 07 February 2024

Abstract

Adverse effects of amlodipine, a widely used antihypertensive, have been well reported. These include flushing and peripheral oedema. Nifedipine, a calcium channel blockers also shares some or most of adverse events of Amlodipine as both are of the same class of CCBs. Lower limb oedema is the most common, which seems dose-dependent and more common reported in females. Occasionally, periocular and perioral oedema have occurred less frequently.

Objective

To report a case of upper extremity oedema associated with amlodipine use in an adult.

Case story

A 79-year-old female presented with 4-day history of diarrhoea and vomiting, one day history of pyrexia. She also complained of dysuria and urinary frequency for 3 days duration. The patient had past medical history of hypertension, coronary artery disease, polycystic kidney disease, heart failure with preserved ejection fraction (HFpEF), chronic kidney disease, and renal transplant. Her medications at presentation included ranolazine 375 mg once daily, prednisolone 5 mg once daily, folic acid 5 mg once daily, one alpha 0.25 mg once daily, bisoprolol 6.25 mg once daily, valsartan 80 mg once daily, apixaban 2.5 mg twice daily, darbepoetin 40 ug SC every 2 weeks, metolazone 2.5 mg weekly, furosemide 20 mg once daily, amlodipine 10 mg once daily and mycophenolate sodium 180 mg mane and 360 mg nocte.

On examination the patient was dehydrated. She was orientated in time, place and person. She had temperature of 38C.Blood pressure was 138/86, heart rate 88 beats per minute, respiratory rate was 20 breaths per minute. Positive clinical findings were pitting oedema on both lower and upper limbs. Oedema was more marked on the right upper limb. Chest was clear to exam, and nothing revealed on abdominal and neurological examinations.

A complete blood count showed HB of 7.5, white cell count 0.63 and neutrophils count 0.32 with normal platelet count. A biochemical profile showed a normal glucose level, hyponatremia 122, urea 25, creatinine 274 and an elevated CRP level at 106. Albumin was 32.

Chest XR was clear. ECG showed sinus tachycardia. Urine dipstick shows leucocytes ++, nitrites+, bloods +. Urine culture grew E.coli and on blood culture gram negative bacilli isolated.

A diagnosis made of E. coli UTI and neutropenic sepsis. Management was rehydration and iv antibiotics and bolus of iv fluid. A renal consult was requested. They advised to withhold valsartan, furosemide, metolazone and mycophenolate. The latter withheld as a believed factor in leucopoenia and neutropenia. The patient's blood indices improved and normalised. Tacrolimus replaced mycophenolate.

The patient noted oedema of both lower and upper limbs which occurred over preceding months. Investigation of the oedema include upper limb imaging to exclude DVT which came negative. Amlodipine was reduced to 5 mg (considered a possible contributing factor to oedema), valsartan discontinued because of hyponatremia and patient commenced on perindopril 5mg. During hospital course noted significant improvement in oedema and the decision was to permanently discontinue amlodipine. The patient felt well and discharged herself before seeing the full effect of amlodipine stoppage. As the patient is known to the renal team, they will take over care to follow up in the clinic.

Discussion

CCB-induced oedema is caused by increased capillary hydrostatic pressure that results from preferential dilation of pre-capillary vessels. Likelihood of vasodilatory oedema increases with the presence of comorbidities, higher dose, along with longer duration of amlodipine use. In a recent trial incorporating active surveillance, 25% of patients experienced oedema whilst treated with amlodipine 10 mg daily, most frequently in lower limbs. Anasarca oedema has been described only once in the English literature. Also in the literature, bilateral upper extremity oedema has been reported with amlodipine use in a child with an abnormal arterial circulation. This case report demonstrates association of bilateral upper extremity oedema with amlodipine use in adults.

Conclusion

Bilateral upper arm oedema was reported in a adult lady with medical background of hypertension, chronic kidney disease, heart failure with preserved ejection fraction and renal transplant. Laboratory and radiologic assessments for possible aetiologies were negative and the oedema improved/subsided after reducing the dose of Amlodipine.