

## Losartan Induced Angioedema – A Case Report.

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Received: May 2016

Accepted: June 2016

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### ABSTRACT

Angiotensin converting enzyme inhibitors (ACE I) and angiotensin receptor blockers (ARBs) are commonly prescribed as antihypertensive drugs and they also show similar side effects. However ARBs are well tolerated than ACE I with low incidence of side effects. Both these classes of drugs can rarely cause angioedema but it is extremely rare with ARBs. The exact pathogenesis of angioedema with ARBs is not known but it has been postulated to be due to activation of complement system and or other pro inflammatory cytokines like prostaglandins and histamine. We report a case of 30 year old male patient who was taking losartan for control of blood pressure but presented with facial swelling and submandibular edema thus suggestive of losartan induced angioedema.

**Keywords:** Losartan, Angiotensin receptor blocker, Angioedema.

### INTRODUCTION

Angiotensin converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARBs) are widely used as antihypertensive agents either singly or in combination in clinical practice. ACE converts angiotensin I to angiotensin II which is a potent vasoconstrictor and breaks down bradykinin—a potent vasodilator. The mechanism of angioedema in case of ACE I is elevated bradykinin levels while in ARBs, angiotensin II receptor activates the bradykinin- prostaglandin nitric oxide pathway, resulting in bradykinin-mediated side effect of angioedema. Unlike ACE I, ARBs do not increase bradykinin levels and hence side effects like angioedema and cough are less commonly observed with them. As a result, ARBs are commonly prescribed to control hypertension when people are intolerant to take ACE I's due to side effects.<sup>[1]</sup> We report a case of losartan induced angioedema in a 30 year male.

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### CASE REPORT

The heart specimen for this study are obtained from A 30 year old male patient, known case of hypertension since 6 months presented with facial swelling, submandibular edema and uneasiness

since ten days. There was no urticarial and skin lesion. He had no significant past family history and history suggestive of atopy or drug allergies. On examination, vitals were BP 140/90 mmHg, Pulse 74/min, ECG and X-ray chest normal. Systemic examination of cardiovascular, abdominal, respiratory and central nervous system including fundus examination revealed no abnormality.

He was taking 50 mg once daily dose of losartan. Laboratory investigations revealed haemoglobin 11.3 g/dl, fasting blood sugar 80 mg/dl with normal white cell counts and normal renal, liver, lipid and thyroid profile. He was suspected of having losartan induced angioedema. So losartan was stopped and he was put on tablet Nebivolol 5 mg once daily for control of blood pressure. He was also given tablet prednisolone in tapering dose along with diphenhydramine which resulted in gradual resolution of symptoms thus confirming the diagnosis of losartan induced angioedema. On follow up at 4 weeks, he was symptom free with control of blood pressure.

### DISCUSSION

Angioedema is described as acute localised non pruritic edema which involves the face, tongue, pharynx, larynx, intestine, extremities and peripheral tissues. It usually appears within first few weeks of ACE I therapy in 60% cases while it may appear later on also.<sup>[2]</sup> The usual mechanism is activation of the complement system and or other proinflammatory cytokines such as prostaglandins

and histamine, which causes vasodilation and edema. Angioedema can also be caused by drugs like aspirin and nonsteroidal anti inflammatory drugs. The incidence of ACE I induced angioedema cases have also been reported in elderly females with history of drug rash and seasonal allergies.<sup>[4]</sup> Some degree of angioedema cross reactivity occurs between ACE I and ARBs but such incidence is low even less than 10%<sup>[5]</sup> and few cases have been reported worldwide also.<sup>[6]</sup> The ARBs specifically block the interaction of angiotensin 2 ARBs receptor level thus increasing water and salt excretion, relaxing smooth muscles, reducing plasma volume and decreasing cellular hypertrophy. Usually they are given once daily dosing.<sup>[7]</sup> These drugs by blocking the rennin angiotensin aldosterone system are greatly effective in the reduction of blood pressure, regression of cardiovascular remodelling, prevention of progression of diabetic nephropathy to end stage renal failure and prevention of cardiovascular morbidity and mortality—hence they are widely used in clinical practice.<sup>[8]</sup> ARBs rarely cause serious adverse effects like cough, hepatotoxicity, angioedema and neuropsychiatric symptoms. Only few case reports of losartan induced angioedema have been reported in the literature. Angioedema is a serious recognised adverse effect of ARB therapy and patients started on them should be made vigilant to look for the early signs so as to necessitate prompt preventive measures.

## CONCLUSION

Losartan and other ARBs are commonly used in hypertensive patients and are also prescribed in patients intolerant to use of ACE I due to their side effects. A close watch, awareness and strict vigilance is warranted to prevent such untoward effects.

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**How to cite this article:** Neki NS, Shergill GS, Kaur A. Losartan Induced Angioedema – A Case Report. *Ann. Int. Med. Den. Res.* 2016;2(4):47-8.

**Source of Support:** Nil, **Conflict of Interest:** None declared