

## Oral Lesion Associated with Hypertension: A Mini Review

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### Abstract

**Background:** Hypertension is a chronic condition due to the high level of blood pressure. There are 2 types of hypertension. Hypertension patients are usually consumed anti-hypertension medication to prevent the high blood pressure which can affect the damage of blood vessel in the body. The used of anti-hypertension drugs can cause the oral lesion because anti-hypertension drugs have several effect on oral mucosa until the dysfunction of salivary glands.

**Objective:** to know the oral lesions that associated with hypertension.

**Problem Statement:** The used of anti-hypertension drug in hypertension patients have side effect. The side effect can cause the oral lesion and tissue damage in oral cavity.

**Discussion:** Cardiovascular drugs such as anti-hypertension can cause oral ulcers such as agranulocytosis and thrompositopenia with hemorrhagic bullae, peteki, ecchymosis with bleeding. Terasozin and prazosin which are anti-hypertensive drugs can inhibit the salivary glands of alpha-adrenoreceptors, causing dry mouth due to reduced saliva production.

**Conclusion:** Hypertension has a specific role as a cause of oral lesion. The use of anti-hypertension drug has shown the associated with oral mucosa damage.

**Keywords:** Hypertension, Anti-hypertension drug, Oral lesion, oral ulcer

### Introduction

Hypertension is a chronic condition due to the high level of blood pressure. There are 2 types of hypertension, first is primary hypertension which cause is unknown (idiopathic). Occurs in about 90% of people with hypertension. In addition there are various other possible causes of primary primary hypertension such as kidney salt handling disorders, plasma membrane abnormalities such as Na<sup>+</sup> - K<sup>+</sup>

pump disorders, NO abnormalities, endothelin, and other local vasoactive chemicals, as well as excess vasopressin (Sherwood, 2014) The second is secondary hypertension which is a known cause. In about 5-10% of people with hypertension, the cause is kidney disease. In about 1-2%, the cause is hormonal abnormalities or the use of certain drugs (for example birth control pills).Hypertension patients are usually consumed anti-hypertension medication to prevent the high blood

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pressure which can affect the damage of blood vessel in the body. The used of anti-hypertension drugs can cause the oral lesion because anti-hypertension drugs have several effect on oral mucosa until the dysfunction of salivary glands (Kaplan, 2005).

**Objective:** to know the oral lesions that associated with hypertension

**Problem statement:** The used of anti-hypertension drug in hypertension patients have side effect. The side effect can cause the oral lesion and tissue damage in oral cavity.

### Discussion

Cardiovascular drugs such as anti-hypertension can cause oral ulcers such as agranulocytosis and thrombocytopenia with hemorrhagic bullae, peteki, ecchymosis with bleeding. Terasozin and prazosin which are anti-hypertensive drugs can inhibit the salivary glands of alpha-adrenoreceptors, causing dry mouth due to reduced saliva production. Clonidine, methyldopa, reserpine, moxonidine, and rilmenidine which are alpha-adrenoreceptors agonists can cause dry mouth through the process of periperal and central mechanisms. Beta-adrenergic blockers can reduce protein in saliva, causing dry mouth and ulcers. Beta adrenergic blockers inhibit one of the CYP enzymes that cause a toxicity reaction that can cause several kinds of reactions, one of which is agranulocytosis. CYP enzymes are useful for preventing poor drug metabolism (Torpet et al., 2004). One of the functions of ACE Inhibitors is to reduce the activity of the sympathetic nervous system. In the salivary glands, sympathetic nerve fibers run along with the arteries that supply the salivary glands. This nerve stimulates the salivary glands to produce thick secretions that are rich in organic and inorganic content. Thus, the inhibition of sympathetic nervous system activity can cause hyposalivation (Tamin and Yassi, 2011).

In addition, antihypertensive drugs angiotensin antagonist group which is a

competitive antagonist of angiotensin II receptors so that it produces indirect activation of angiotensin 2 receptors. Oral manifestations of the use of this type of antihypertensive drug are angioedema. Antihypertensive drugs of calcium channel blockers can cause chronotropic and ionotropic negative actions from the heart. Oral manifestations of the use of this type of antihypertensive drug are gingival enlargement. Antihypertensive drugs calcium channel blockers affect calcium metabolism by reducing influx of calcium ions thereby reducing uptake of folic acid which limits the production of active collagenase. This results in a decrease in collagen degradation. Some antihypertensive drugs of the diuretic class, alpha adrenergic blockers, beta adrenergic blockers, central symphatholytics cause oral manifestations, namely dry mouth. Especially for diuretic drugs cause blockade of the electrolyte transport system, causing a decrease in salivary flow (Southerland, 2016).

### Conclusion

Hypertension has a specific role as a cause of oral lesion. The use of anti-hypertension drug has shown the associated with oral mucosa damage. The clinical appearance in oral cavity can be used as an early detection in hypertension patients

### References

1. Kaplan, N.M. Systemic hypertension: mechanisms and diagnosis. in: D.P. Zipes, P. Libby, R.O. Bonow (Eds.) Braunwald's heart disease. 7th ed. Elsevier Sanders, Philadelphia, PA; 2005:959-1012
2. Torpet, L. A., Kragelund, C., Reibel, J., Nauntofte, B. 2004. ORAL Adverse Drug Reactions To Cardiovascular Drugs. *Crit Rev Oral Biol Med*, 15(1), pp. 33-35.
3. Sherwood, L. 2016. *Human Physiology From Cells to System*. 9th ed. USA: Cengage Learning, pp. 371-372.
4. Tamin, S. dan Yassi, D. (2011). Penyakit kelenjar saliva dan peran

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- sialoendoskopi untuk diagnostic dan terapi. *Oto Rhino Laryngologica Indonesiana*, 41(2), p.95.
5. Southerland, J.H., Gill, D.G., Gangula, P.R., Halpern, L.R., Cardona, C.Y. dan Mouton, C.P., 2016. Dental management in patients with hypertension: challenges and solutions. *Clinical, cosmetic and investigational dentistry*, 8, p.111.

**Citation:** Achmad Zam Zam Aghasy et al. (2020), "Oral Lesion Associated with Hypertension: A Mini Review", *Arch Health Sci*; 4(1): 1-3.

**DOI:** 10.31829/2641-7456/ahs2020-4(1)-108

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