

Epistaxis in Normotensive Individuals May Lead to Transient Hypertension

Epistaxe em Pacientes Normotensos pode Provocar Hipertensão Transitória

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RESUMO

- Introdução:** Há muita controvérsia em relação à hipertensão e à epistaxe.
- Objetivo:** Este estudo foi realizado para investigar se há alguma co-relação entre a epistaxe e a hipertensão crônica.
- Método:** Estudaram-se casos idiopáticos de epistaxe ativa (n=49, entre 20 e 40 anos de idade) no Departamento de Ouvido, Nariz e Garganta do Hospital Escola TU, Nepal. Registrou-se a pressão arterial durante a epistaxe ativa e após o tratamento, sem medicamento anti-hipertensivo, ao dia da alta do paciente.
- Resultados:** Durante a epistaxe ativa, a pressão arterial registrada foi de 142/91 mmHg. Depois do tratamento, registrou-se 119/75 mmHg.
- Conclusão:** A perplexidade devido ao sangramento nasal repentino traz ansiedade ao paciente e estimula o sistema simpático provocando secreção profusa de epinefrina associada à norepinefrina da medula adrenal, que agiu principalmente sobre receptores. Conseqüentemente, a pressão arterial subiu rapidamente. Embora poucos pacientes com hipertensão crônica podem apresentar sangramento nasal não-traumático, os resultados do presente estudo indicam claramente que a epistaxe freqüentemente não é associada à hipertensão.
- Palavras-chave:** epistaxe, hipertensão, associação.

SUMMARY

- Introduction:** There exists a lot of controversy about epistaxis and hypertension.
- Objective:** This study was done to investigate whether there exist any correlation between epistaxis and chronic hypertension.
- Methods:** Idiopathic cases of active epistaxis (n=49, age 20-40 years) were studied in ENT Department of T.U. Teaching Hospital, Nepal. Blood pressure was recorded during active epistaxis and after treatment, without antihypertensive drug, on the day of discharge.
- Results:** During active epistaxis, the blood pressure was noted about 142/91 mmHg. While after treatment, it was 119/75 mmHg.
- Conclusion:** Bewilderment due to sudden nose bleeding made the victim anxious and stimulates the sympathetic system causing profuse secretion epinephrine along with nor epinephrine from adrenal medulla which mainly acted on α_1 receptors. As a result, blood pressure shot up promptly. Although few patients with chronic hypertension may present with non-traumatic nose bleeding, results of the present study clearly indicates that the epistaxis is not frequently associated with hypertension.
- Key words:** epistaxis, hypertension, association

INTRODUCTION

Idiopathic epistaxis is defined as any episode of bleeding from nasal cavity without any detectable cause (1). Although, epistaxis and hypertension are frequent in general population but their clear correlation is still controversial (2). HERKNER *et al* (2000) reported that the patients presenting epistaxis were hypertensive (3). On the contrary, according to some group of scientists the history of epistaxis was not associated with hypertension classified according to the World Health Organization (1,4). Blood pressure of the admitted patients was recorded using aneroid sphygmomanometer following conventional methods (5). Aneroid sphygmomanometer was used as it is a simple and safe machine by which blood pressure can be recorded almost accurately (6,7). This study was done to evaluate whether patients or individuals with epistaxis in emergency department were hypertensive or not.

MATERIALS AND METHODS

There were 49 patients (male: 33, female: 16; age group 20-70 years) having no prior clinical history of hypertension admitted in Department of Ear Nose Throat and Head & Neck Surgery ward of Tribhuvan University Teaching Hospital, Kathmandu, Nepal (from July 2005-June 2006). Patients with history of trauma to nose, local pathology, systemic diseases and bleeding disorders and children's were excluded from the study. Blood pressures of them were recorded by authors in supine position using aneroid sphygmomanometer (Doctor, made in Japan) when they presented themselves in Emergency Department with active nose bleeding. Blood pressure was again recorded on the day of discharge, (About a week after the hospital admission) using the same aneroid sphygmomanometer following conventional method (5). It was recorded at 9:00 AM and 10:00 AM and average was taken. As, blood pressure measurement is a part of routine clinical

check up, and is a non-invasive procedure, institutional ethics committee and the subject had no objection on our work. Data were analyzed statistically by using students 't' test.

RESULTS

It is evident from the table that both males and females presented with active nose-bleeding showed significantly higher blood pressure compared to their casual blood pressure at the time of discharge from the hospital (p -value < 0.05). For males during epistaxis blood pressure recorded was $142.42 \pm 19.20 / 91.51 \pm 12.27$ mmHg and for females the same was $141.87 \pm 20.72 / 91.25 \pm 16.68$ mmHg (Table-1). After managing epistaxis, the blood pressures of males and females were noted as $119.39 \pm 12.23 / 75.15 \pm 7.55$ mmHg and $118.75 \pm 12.04 / 76.25 \pm 13.10$ mmHg respectively (Table -1).

DISCUSSION

Epistaxis is common Otorhinolaryngologic emergency. The bleeding may occur from one or many bleeding points particularly Little's area or posteriorly (8). The blood pressure of both male and female patients during active nose bleeding was noted about 142/91 mmHg. Our results corroborates the previous findings of HERKNER *et al*, that patients with active epistaxis had higher blood pressure at presentation compared with controls (2). The results of this study clearly indicated that the patients with active epistaxis had higher blood pressure presentation at emergency department in comparison with their casual blood pressure noted after treatment.

Epistaxis is usually of sudden onset (8). The victim feels bewildered and suffers from anxiety. Anxiety is associated with sympathetic stimulation and secretion of catecholamine which may increase the rate and force of

Table I. Blood pressure of the patients during idiopathic epistaxis and after treatment.

Sex	Blood pressure(mmHg)		Condition
	Systolic pressure	Diastolic pressure	
Male (n= 33)	$142.42 \pm 19.20^*$	$91.51 \pm 12.27^*$	Active epistaxis
	119.39 ± 12.23	75.15 ± 7.55	After treatment
Female (n = 16)	$141.87 \pm 20.72^*$	$91.25 \pm 16.68^*$	Active epistaxis
	118.75 ± 12.04	76.25 ± 13.10	After treatment

* = p -value < 0.05

contraction of cardiac muscle causing an increase in cardiac output (9) — leading to an increase in systolic blood pressure in both male and female counterparts. Sympathetic stimulation leads to vasoconstriction of superficial vascular bed (10). Epinephrine and nor epinephrine secreted from the adrenal medulla due to sympathetic stimulation, directly act on blood vessels usually to cause vasoconstriction (9) leading to an increase in peripheral resistance and thereby causing the elevation of diastolic pressure. Existing literature indicates that nor epinephrine secretion tends to be selectively increased by emotional stress with which the individual is familiar whereas epinephrine secretion increases in situation in which the individual does not know what to expect (11). The smooth muscles of blood vessels that supply skeletal muscles has both β_2 and α receptors; activation of β_2 receptors causes vasodilatation and stimulation of α receptors constricts these vessels. Nevertheless, when both types of receptors are activated at higher concentration of epinephrine the response to α -receptors predominates (12). In the present study emotional stress during active epistaxis might cause profuse secretion of epinephrine from adrenal medulla which in turn increased both the systolic and diastolic pressure (12). Despite the fact that during active nose-bleeding patients showed hypertension (BP > 140/90 mmHg); after treatment i.e., at the time of discharge from the hospital, they were found normotensive without any antihypertensive therapy. Although few patients with chronic hypertension may present with non-traumatic nose bleeding, results of the present study clearly indicates that epistaxis is not frequently associated with hypertension.

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