

Echocardiographic Study Among Traffic Police Personnel in Central Nepal

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ABSTRACT

Background: Echocardiographic studies among traffic police personnel are lacking in the world including in Nepal. So, this study is planned to detect any structural cardiac abnormalities in this specific group population.

Methods: This is a cross-sectional descriptive study conducted among fifty traffic police personnel working in the Chitwan district of Nepal. All underwent two-dimensional transthoracic echocardiography in Chitwan Mutu Aspatal.

Results: The age ranged from 21 to 55 years, with a mean age of 35 years. Males were predominant (46/50) and 14(28%) were diagnosed as hypertensives. Mild MR was detected on 11(22%) participants.

Conclusion: This is the first reported observational study so far among the traffic police personnel in Nepal. There is a high incidence of systemic hypertension among these populations though no major cardiac structural abnormalities were detected.

Keywords: traffic police personnel; echocardiography; systemic hypertension.

INTRODUCTION

Urbanization is causing a dramatic growth in the number of automobiles in many cities throughout the world, leading to major traffic congestion issues. As a result, the traffic police must operate amid hundreds of unpleasant and polluting automobiles for the entirety of their shifts to maintain a continuous flow in the traffic Bamfield.¹ The health of those exposed is also significantly influenced by their working environment. As the time of exposure lengthens, the health risks become more serious. This feature is particularly significant when there is traffic duty personnel present. These workers are required to work in an atmosphere polluted by fumes, car emissions, horn use, blowing dust in the air from fast vehicles, and many others. The employees also pursue a nearly sedentary job because they only move a short distance when necessary and spend significant periods standing still. Therefore, a combination of long-term exposure to environmental toxins and their employment risk owing to posture and position may influence their cardiovascular system.² This study was carried out in Chitwan Mutu Aspatal Pvt Ltd, central Nepal, to evaluate the cardiac status of the traffic police personnel in the Chitwan district of Nepal and identify structural heart diseases, if any, by two-dimensional transthoracic Echocardiography. Also, the study was intended to educate and provide necessary preventive measures or therapies as needed.

METHODS

This is a cross-sectional, descriptive study conducted among traffic police personnel working in urban

areas of Nepal from the entire Chitwan District. After receiving written consent, 50 traffic personnel were enrolled in the study. Their age, gender, and comorbidities were noted. The expert consultant cardiologist performed all the two-dimensional transthoracic echocardiography with Color Doppler. Continuous wave and pulse wave velocities were calculated whenever indicated. It was done over a period of subsequent 5 days using GE Vivid 8 series Echocardiography Machine. All the relevant echocardiographic results were recorded.

RESULTS

A total of 50 echocardiography were performed among 50 participants, out of whom 46(92%) were males, and 4(8%) were females. The age of the participants ranged from 21 years to 55 years, with a mean age of 35years. Among participants were 14(28%) with known systolic hypertension, 1 with Type 2 DM/dyslipidemia, and 1 with post-laryngeal carcinoma. Mild MR was seen among 11 participants (22%), Mild MR with Mild concentric LVH in 2(4%), Mild MR with Mild TR in 1(2%), Trace MR in 1(2%), and Mild AR among 2 participants(4%), Moderate Concentric LVH in 1 (2%), and 32 participants (64%) had normal echocardiography findings. However, no serious cardiac structural or ischemic changes were noted among that personnel. The etiology of valvular findings in our study were non-rheumatic, although the incidence of rheumatic heart disease in the Nepalese community is common, as quoted by Laudari S et al.² The pie chart below in (Figure1) illustrates the overall two-dimensional echocardi-

graphic findings of traffic police personnel in the Chitwan district of Nepal.

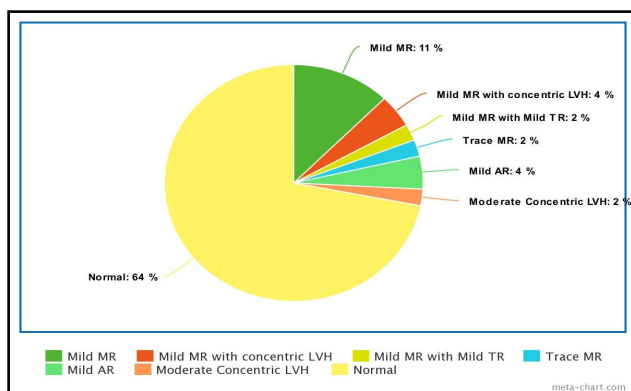


Figure 1. Overall two-dimensional echocardiographic findings of traffic police personnel.

DISCUSSION

This cross-sectional study sought information from 50 traffic police officers to conduct the first evaluation of echocardiographic findings among traffic police in Chitwan, Nepal. This research sought to determine whether the Nepalese traffic police line of work was associated with an increased risk of cardiovascular disease. Compared to the general population, police officers are more likely to experience cardiac mortality at a younger age.^{3,4} Common risk factors may not appropriately screen the population of police officers.⁵ For assessing heart anatomy and function, echocardiography has emerged as the leading cardiac imaging tool.³ Streptococcal sore throat that causes rheumatic

heart disease, complications from tuberculosis, parasite infestation that causes pericardial illnesses, and non-communicable diseases like hypertension and ischemic IHD continue to be a significant burden in developing nations like Nepal.^{6,7} Therefore, we carried out this cross-sectional study to examine the impact of these conditions in highly demanding jobs like traffic police compared to a typical healthy population. In this study, we inquired about hypertension history, performed auscultation, and conducted echocardiography to determine whether any structural or valvular heart disease was present in these participants. Our study revealed that, of the 50 participants, 14 (28%) had hypertension, which is greater than the average for the same-age demographic in the general population of Nepal.⁸ The echocardiographic result revealed that 5 (10%) had hypertensive heart disease, which is lower than the general population, and 32 (64%) participants had normal echo findings, which is higher than the general population of Nepal.⁷ The prevalence of mild mitral regurgitation (22%) is lower than that when compared to the general Chinese population.⁹

CONCLUSION

This is the first reported observational study so far, we know among the traffic police personnel in Nepal. There is a high incidence of systemic hypertension among these populations, although no significant cardiac structural abnormalities were detected.

Conflict of Interest: None.

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