

PREVALENCE OF INNOCENT MURMUR IN RURAL COMMUNITIES OF PAKISTAN

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ABSTRACT

Background: Innocent murmurs are important clinical finding detected by clinicians. **Objective:** To determine the prevalence of innocent murmur in general rural population of Rahim Yar Khan. **Methodology:** This was a cross sectional study conducted as a sub study of a survey conducted for rheumatic fever/ rheumatic heart disease. A representative sample of general rural population of Rahim Yar Khan was selected by random sampling technique. Eleven villages were screened by auscultation and confirmed by echo/Doppler studies at Sheikh Zayed Medical College/Hospital, Rahim Yar Khan. **Results:** A total of 404 persons were found with murmurs, 148 individuals on initial screening have innocent murmur (IM). 203 persons have suspect murmur and they underwent echocardiography. IM was found in 96 subject after echocardiography. The prevalence of IM was 244 (2.5%) in this study. **Conclusion:** This study indicate high prevalence of innocent murmur in general rural communities.

Keywords: Innocent murmur, Prevalence, Rural communities

INTRODUCTION

Cardiac murmurs may be detected commonly on physical examinations by physicians. Innocent murmurs are defined as murmurs having no underlying organic/pathological etiology.¹ The evidence shows that innocent murmurs are quite common among pediatric patients.² These murmurs occurs mostly in systole, however, venous hum is continuous. Organic systolic murmur are of high intensity $\geq 3/6$ wide spread indicates underlying lesion. Diastolic murmurs are always organic.³ Contrary to anatomic / organic the innocent murmur are well localized usually along the upper LSB. Innocent Murmurs intensity usually changes with change in position and examiner. Additionally, cyanosis should not be present in innocent murmur,⁴ and its quality is vibratory and sometime blowing.

Most of the studies describing innocent murmurs were conducted in pediatric or infant age groups and the data is hospital based. To the best of our knowledge no study has been published regarding prevalence of IM in rural population of all ages. This study is the review of data from epidemiological survey regarding prevalence and pattern of Rheumatic Heart disease in the rural areas by Rizvi et al⁵ and we have extracted the prevalence of innocent murmurs in this extensive cross sectional survey of the rural population representing Pakistan based on ethnicity as well.

METHODOLOGY

This retrospective data was reviewed from

epidemiological survey for prevalence and pattern of rheumatic heart disease in the rural areas of Pakistan. A representative sample of general population of Rahim Yar Khan was selected. The detailed methods have been discussed elsewhere.⁵

Innocent murmur was diagnosed as having murmurs of no organic reason found on initial screening and plus diagnosed on echocardiography out of all suspected murmurs. The team composed of district cardiologist (SFH) and his associates visited each household in the sample village to examine all family members for screening purpose. Every family member was auscultated by one of us in supine and left lateral decubitus position creating a possible silent atmosphere in the surroundings. All doubtful cases were cross checked and confirmed. Sometime certain maneuvers like standing / sitting, light exercise, valsalva and hand grip were performed to elucidate the low grade murmur or other auscultatory events. Data was analyzed by using SPSS version 16.

RESULTS

A total of 404 persons were found with murmur out of total screened population. 148 individual were declared as having innocent murmurs on initial screening. 203 suspected murmur cases underwent echo / Doppler studies to define the cause of murmurs. In 96 persons of suspect murmurs, no organic heart disease after echo was identified and this group was designated as innocent murmur on echocardiography. 148 diagnosed on initial screening and 96 on echocardiography were labeled as having IM. Out of 404 murmurs, 244 were

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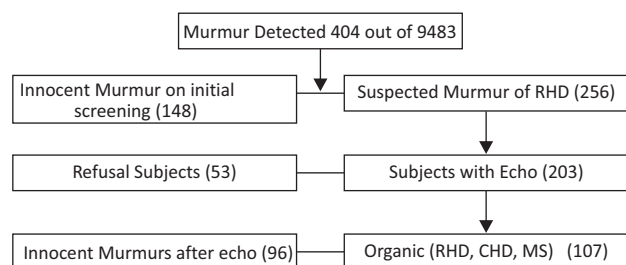
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innocent. Prevalence of innocent murmurs was found to be 244 (2.5%) out of screened population. (Figure I).

Figure I: Prevalence of Innocent Murmurs



DISCUSSION

Innocent murmur are reported in many children attending a clinician.^{6,7,8} They are labeled as murmurs in absence of any abnormality of or cardiovascular disease.^{9,10,11} The differentiation of innocent from organic murmur for purpose of therapy prognosis and ensurability is a leading reason of referral to cardiac physician. Differentiation of innocent murmur from organic needs skill to identify auscultatory findings in cardiac abnormalities as well as that of innocent murmurs. Innocent murmurs usually can be recognized using history, physical examination intake auscultation and electrocardiography.^{12,13} However echo was rarely used.

Echocardiography has established role in the evaluation of murmur. This study showed that 244 (2.5%) of the study population has IM. This is comparable to other studies as well, however those studies were mostly conducted among pediatric population.^{7,10} Many functional/innocent murmurs may have organic origin and vice versa. Particularly in a field study where examiner are in hurry to auscultate as many subjects as possible, its use become more important. We have evaluated our systolic murmurs > grade 2/6 apical systolic murmurs and diastolic murmurs irrespective of their grade by echo/Doppler study to define the underline cause. 148 suspect murmurs on initial screening had no underline pathology.

CONCLUSION

This study shows a high prevalence of innocent murmur in general rural communities. This is the first feel study where echo/Doppler was used to confirm innocent out of organic murmur.

REFERENCES

1. Epstein N. The heart in normal infants and children. *J Pediatr* 1948;32:39-45.
2. Sampson JJ, Hahman PT, Halverson WL, et al. Incidence of heart disease and rheumatic fever in school children in their climatically different California communities. *Am Heart J* 1945; 29:178-85.
3. Caceres CA, Perry LW. The innocent murmur: A problem in clinical practice. Boston: Little, Brown, 1967.
4. The cervical venous hum. In Caceres CA, Perry LW (eds). *The Innocent Murmur*. Boston: Little, Brown, 1967:181-192.
5. Rizvi SF, Khan MA, Kundi A, Marsh DR, Samad A, Pasha O. Status of rheumatic heart disease in rural Pakistan. *Heart*. 2004 Apr;90(4):394-9.
6. McCrindle BW, Shaffer KM, Kan JS, et al. Cardinal clinical signs in the differentiation of heart murmurs in children. *Arch Pediatr Adolesc Med* 1996;50(2):169-73
7. Braudo M, et al. Auscultation of the heart. Early neonatal period. *Am J Dis Child* 1996;101:575-9.
8. Richards MR, Merritt KK, Samuels MH, et al. Frequency and significance of systolic cardiac murmurs in infants. *Pediatrics* 1955; 15:196-99
9. Farrer KF, Rennie JM. Neonatal murmurs: Are senior house officers good enough? *Arch Dis Child Fetal Neonatal Ed* 2003;88(2):F147.
10. Ainsworth S, Wyllie JP, Wren C. Prevalence and clinical significance of cardiac murmurs in neonates. *Arch Dis Child Fetal Neonatal Ed* 1999;80(1):F43
11. Van Oort A, Blanc-Botden M, De Boo T, et al. The vibratory innocent heart murmur in schoolchildren: Difference in auscultatory findings between school medical officers and a pediatric cardiologist. *Pediatr Cardiol* 1994;15(6):282.
12. Arlettaz R, Archer N, Wilkinson AR. Natural history of innocent heart murmurs in newborn babies: Controlled echocardiographic study. *Arch Dis Child Fetal Neonatal Ed* 1998; 78(3):F166
13. Friedman S, Robie WA, Harris TN. Occurrence of innocent adventitious cardiac sounds in childhood. *Pediatrics* 1949; 4:782-86.

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