

MP1-23

Are general paediatricians able to accurately distinguish innocent from pathological murmurs in children?

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Introduction

Up to 80% of children have heart murmurs but less than 1% have confirmed organic heart disease (1). Correct identification of pathological murmurs is important to avoid inappropriate referrals to paediatric cardiology (along with unnecessary patient and parental anxiety) or missed disease. This study investigated how accurately general paediatricians can distinguish between innocent and pathological murmurs.

Method

Sixty-two general paediatricians were recruited from across the Yorkshire region of England. They were played eight anonymised digital heart recordings obtained from asymptomatic children with an otherwise normal cardiovascular examination. The murmurs included a ventricular septal defect, atrial septal defect, patent ductus arteriosus, Still's murmur and pulmonary flow murmur. Participants stated whether each recording was normal heart sounds, an innocent or pathological murmur as well as the likely diagnosis and necessity for referral. Demographic data including age, gender, level of experience and any speciality training in cardiology was also collected.

Results

Of those recruited, 35 were consultants and 27 trainees. The sensitivity of distinguishing innocent from pathological murmurs was 89.9%, specificity 66.5% and diagnostic accuracy 78.3%. The false positive rate for referrals to paediatric cardiology was 43.2% with a false negative rate of 8.7%. On sub-group analysis the only variable of statistical significance was level of experience. The difference between specificity for consultants (74.3%) and trainees (51.2%) was 23.1% (95%CI = 10.1 to 36.1%).

Conclusion

These results raise concern about the ability of general paediatricians to accurately distinguish innocent from pathological murmurs. Although inappropriate cardiology referrals place extra pressure on already stretched services, potential complications from missed disease are clearly far more worrying. Given that there is clearly neither the time or resources available for paediatric cardiologists to assess every child with a murmur, this research provides further evidence of the need for increased numbers of paediatricians with cardiology expertise in the UK.

1. Danford DA. Clinical and basic laboratory assessment of children for possible congenital heart disease. *Curr Opin Pediatr* 2000; 12:487-91.