RHEUMATIC HEART DISEASE PREVALENCE AMONG SCHOOLCHILDREN IN ANKARA, TURKEY*

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SUMMARY: Olguntürk R, Aydın GB, Tunaoğlu FS, Akalın N. (Department of Pediatric Cardiology, Gazi University Faculty of Medicine, Ankara, Turkey). Rheumatic heart disease prevalence among schoolchildren in Ankara, Turkey. Turk J Pediatr 1999; 41: 201-206.

Rheumatic heart disease (RHD) continues to be a common health problem in the developing world. Although little longitudinal data are available, evidence suggests that there has been little if any decline in the occurrence of RHD over the past few decades. There are only a few population surveys available in Turkey for prevalence of RHD. This survey was undertaken to estimate its prevalence among schoolchildren and changes over the last 20 years in the capital, Ankara.

In Ankara, 4,086 schoolchildren aged between six and 17 years were screened over a period four months (March 1995-June 1995) by the same pediatrician. Forty-eight percent (n = 1,945) were female and 52 percent (n = 2,141) were male. Three children out of 4,086 (0.73 per 1,000) were noted to have findings consistent with RHD. Fifteen children had an episode of rheumatic fever (RF). Cumulative prevalence rate (prevalence rate for RF history) was 3.7 per 1,000. We concluded that RHD prevalence has decreased in Ankara over the last decades. *Key words: rheumatic heart disease, prevalence, Turkey.*

Although there has been some concern about the resurgence of rheumatic fever (RF) and rheumatic heart disease (RHD), the general trend is that of a declining prevalence, particularly in developed countries. However, in developing countries the exact magnitude of the problem remains largely unknown[1,2].

There are few available data on RF and RHD in Turkey. Some of them are based on hospital admission records and incidence rates that are not accurate and do not represent all the country[3]. Some studies are about RHD prevalence in different regions of Turkey. Those studies are about the prevalence of cardiac murmurs, and neither the RHD nor the cumulative prevalence rates were searched specifically[4-7]. One study, conducted in Ankara in 1975, was a survey of prevalence, which was found as 6.6 per 1,000 (range between 2.1 and 10.7 per 1,000 in higher and lower socioeconomic status) groups, respectively. Cumulative prevalence rate was 3.7 per 1,000[8].

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The specific objectives of this report were to carry out a case finding survey in order to determine the prevalence of RHD among schoolchildren in Ankara and to compare the results with previous studies.

Material and Methods

The study was a retrospective one, carried out by a specially trained pediatrician and a pediatric cardiology unit.

- The study involved schoolchildren at high risk for RHD (aged 6-17 years), between March and June 1995.
- Thirty-four schools were selected and from these schools 20 percent of the students were examined.
- Each child was given a questionnaire about RF history and the socioeconomic status of the famiy. They were asked about the age of onset of RF, the number and type of attacks, history of prophylactic regimen, and duration of valvular disease (if present), the number of individuals rooms in one household, and the total income of the family.
- All the students were examined by the same pediatrician. The students suspected of having heart disease were re-examined in a pediatric cardiology unit and electrocardiograms, chest x-rays anad echocardiograms were obtained if necessary.

Results

- In 34 schools, 4,086 students aged between six and 17 years were examined (47.6% female and 52.4% male) (Fig. 1).

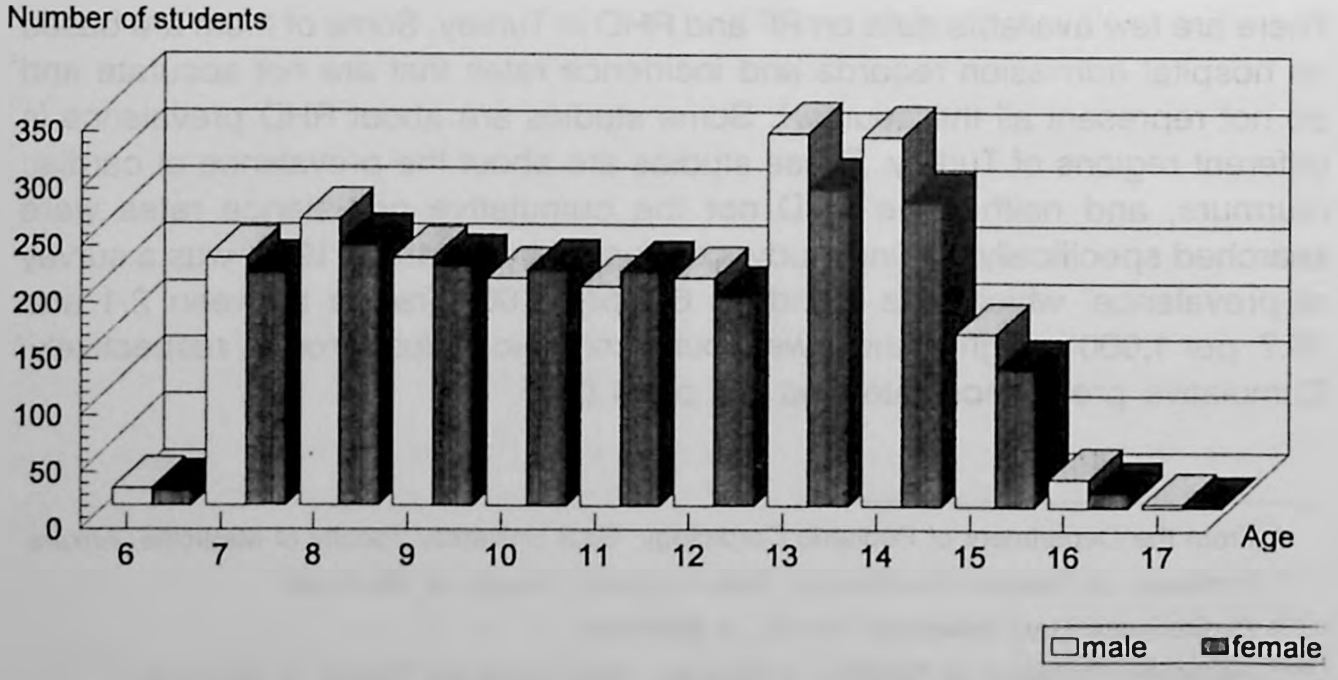

Fig. 1: Age and sex distribution of the schoolchildren in the survey.

• The average number of individuals per household was 4.9 (range 2-14). The average number of rooms per house was 2.8 (range 1-9). The average income per family was 13,200,000 TL (range 4,540,000-51,030,000).

• Fifteen children had an episode of RF attack. Thus, the cumulative prevalence rate (prevalence rate for RF history) was 3.7 per 1,000. All were on regular secondary prophylaxis.

• Three children were diagnosed as RHD. The prevalence rate for RHD was 0.73 per 1,000. The characteristics of each case with RHD are given in Table I. All had mitral valve insufficiency. One patient also had aortic valve insufficiency and one had tricuspid valve insufficiency and cardiac involvement (this patient underwent cardiac surgery for mitral valve replacement). Only one child was on regular secondary prophylaxis. The other two children were not aware of their disease.

Table I: Characteristics of the Students with Rheumatic Heart Disease

			Auscultatory Findings					
	Age	Sex	Area	Intensity	Character	EKG	X-ray	ECHO
1	12	boy	apical	II/VI	pansystolic	LA dilatation	cardiac enlargement	MR, TR, LA and LV dilatation
2	10	boy	apical	II/VI	pansystolic	normal	normal	MR
3	12	girl	aortic	II/VI	pansystolic	normal	normal	AR, MR (mild)

LA: left atrium; MR: mitral regurgitation; TR: tricuspid regurgitation; LV: left ventricle; AR: aortic regurgitation.

• The RHD prevalence rate was not statistically different in urban or rural regions (Figs. 2, 3).

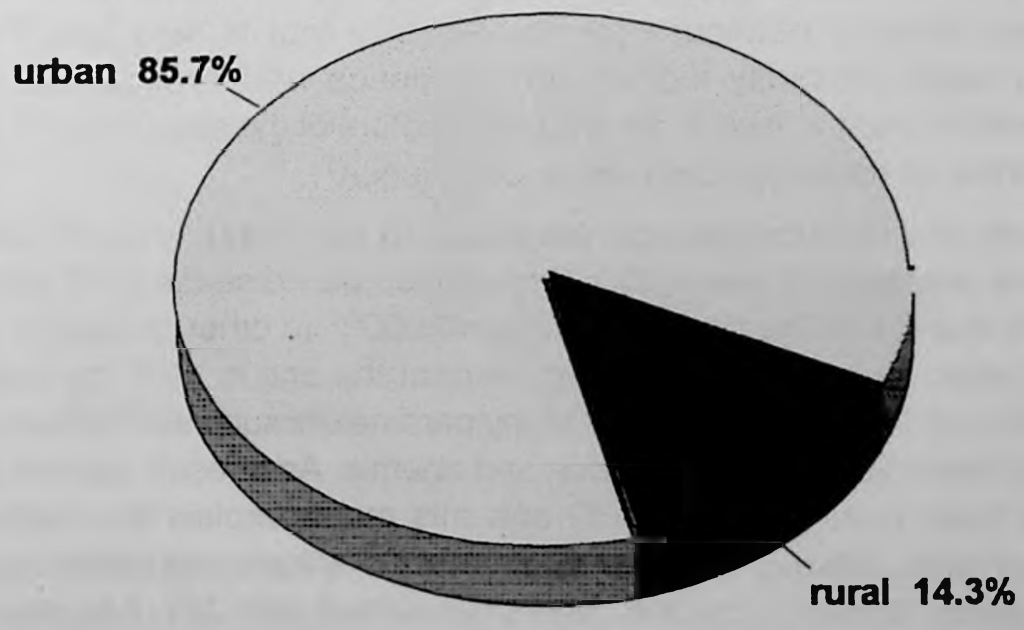

Fig. 2: Distribution of the Schools in Ankara.

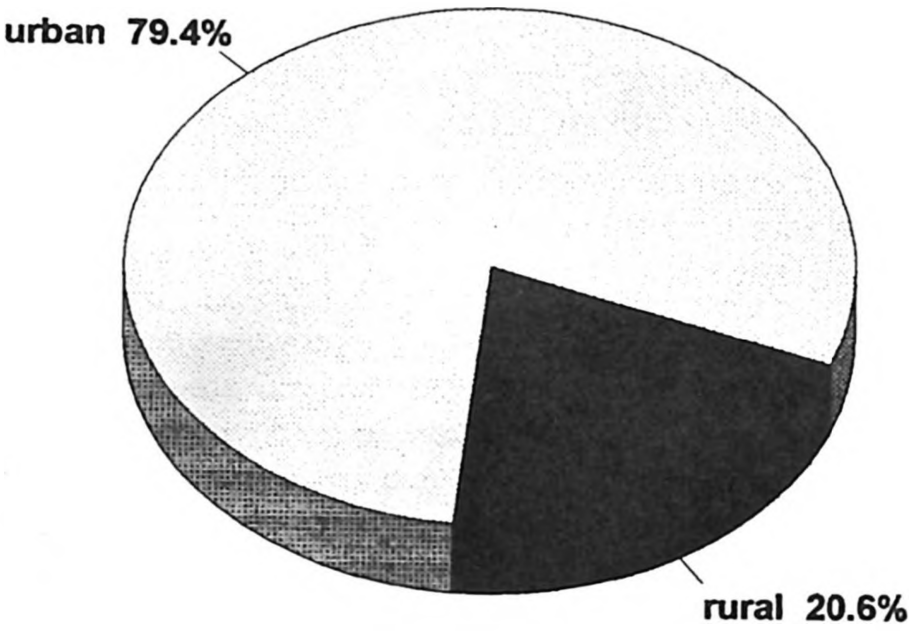

Figure 3: Distribution of the schools in the survey.

Discussion

Rheumatic fever continues to be a major cardiovascular health problem in developing countries. The continued presence of the disease in developing countries and the reappearance of RF in industrialized countries demands the renewed interest of researchers, clinicians and public health workers[9, 10].

Since mortality and morbidity as well as the cost of treatment are high in patients with RF and RHD, it is necessary to plan effective programs for the prevention and control of RHD. Thus, a precise knowledge of disease frequency is needed. The extent of an illness such as RF is better measured in terms of morbidity rather than mortality becacuse the case-fatality rate is very low. The most frequently used morbidity indices are incidence and prevalence. Another measure which may be used in developing a picture of the size of the RF problem is prevalence of history or cumulative prevalence[11].

In this study, the RHD prevalence rate was 0.73 per 1,000, and the cumulative prevalence rate was 3.7 per 1,000. Rheumatic heart disease RHD prevalence rates were found between 0.3 and 1.1 per 1,000[4-7] in other studies in different parts of Turkey (Fig. 4). These studies, except the one in 1975 by İmamoğlu[8], were performed for the prevalence of many parameters such as innocent murmur, congenital heart disease, hypertension and anemia, As a result, special attention might not have been given to RHD and this might explain the relatively low prevalence rates. Although the previous survey in Ankara was performed in only four elementary schools (children aged between 6 and 12), it is important to compare these two surveys to determine how RHD prevalence rates have

changed over the last 20 years. Rheumatic heart disease RHD prevalence decreased in Ankara nine-fold and cumulative prevalence by ten-fold (Fig. 5). This decrease might have been caused by continuous vigil, better socioeconomic conditions, prompt treatment of streptococcal pharyngitis and improvement in primary health care. Other surveys[4-8] also showed that RHD prevalence rate was decreasing.

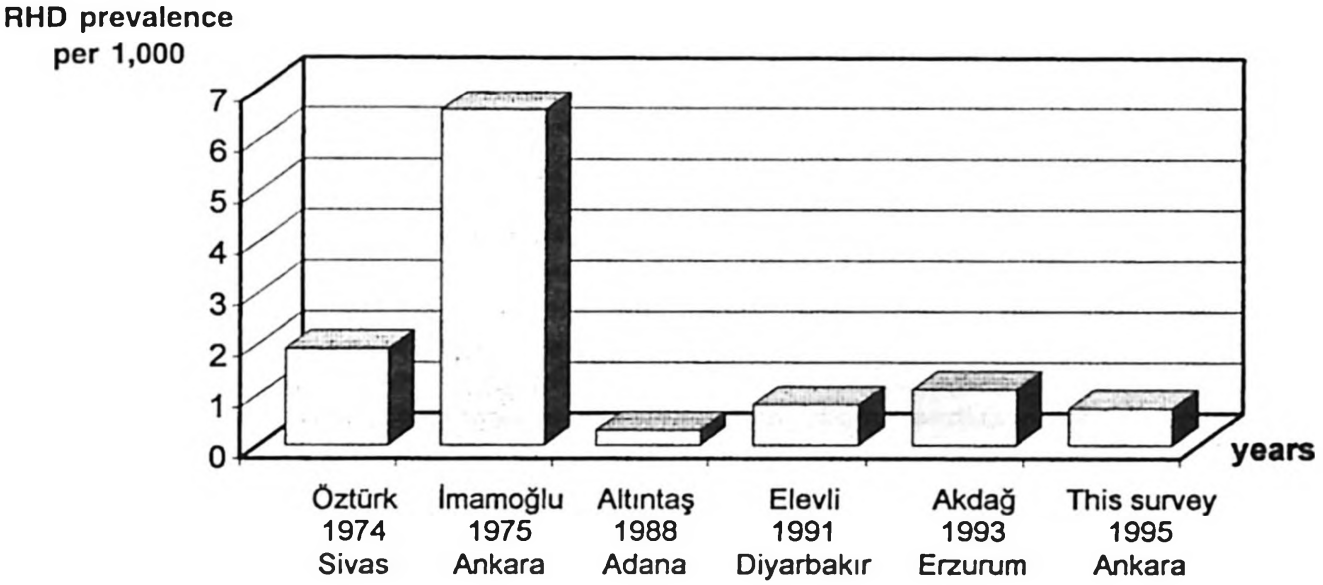

Figure 4: Rheumatic heart disease prevalence in Turkey.

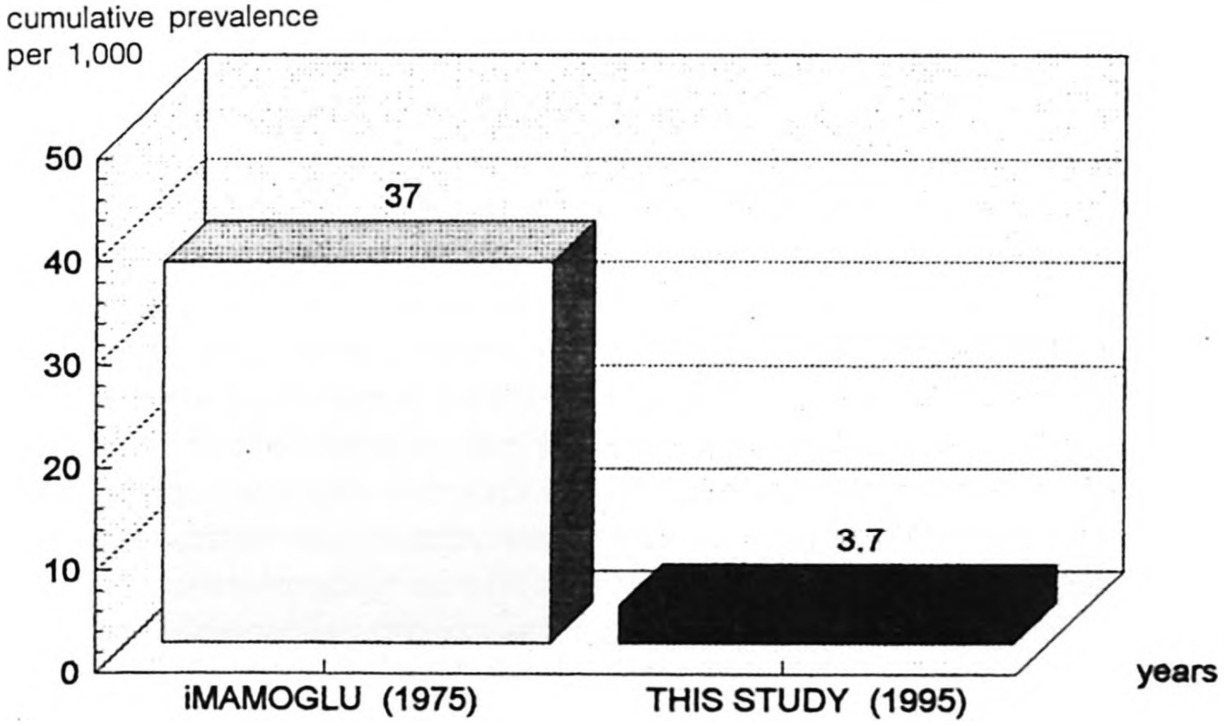

Fig. 5: Cumulative prevalence in Ankara.

Because of the large social and economic burdens imposed by RHD, a greater emphasis needs to be placed on the simple and cost-effective measures that are currently available to eradicate RHD in the world.

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