

Rheumatic Fever and Rheumatic Heart Disease: The Medical Menace in the Muslim Countries

Pages with reference to book, From 145 To 150

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Introduction

The muslim countries of the world form a major segment of the rheumatic fever-heart disease (RFHD) belt in the world. Some Contributions have been made by the contemporary muslim scholars in the treatment and control of rheumatic fever and rheumatic heart disease. The reasons for the higher prevalence of RFHD and the fallacies in the control programmes in the muslim countries are debatable. However, the failure of control of this ailment in the muslim countries is linked with socio economic maldevelopment and the ghost of this disease which licks the joints and bites the heart still profoundly exists. Although more centres are now involved in studies on treatment and prevention of RFHD consensus on preventive strategy does not exist. This paper reviews the current status of RFHD in the muslim countries with recommendations to minimise this medical menace.

Epidemiologic Profile Rheumatic Fever in the Muslim Countries:

Saraclar (1977) in Ankara has reported rheumatic fever (RF) in 20/100,000 and in the Ilacettepe Children Hospital, Ankara during 1976, 939 cases of RF were studied and of these 284 (30%) reported with the first episode. Ekmekci and Ozcan (1970) in a school survey in Istanbul in 3,500 children reported RF incidence rate of 0.7% in Etimesgut area. El-Khollv et al. (1972, 73) have reported, from Cairo, RF incidence in a general semiurban population of about 1 .5/I ,000 inhabitants. In another survey 5% of the school children has skin infections the majority harbouring group A streptococci, but there was no evidence to suggest that this was dominant source of acute glomerulonephritis (El-Khollv et al., 1972, 1973, 1980; Sarour and El-.Khollv, 1970).

Rheumatic fever is also reportable disease in Indonesia, and Hanafiah (1975) reported from 5,446 medical admissions that RHI) constituted 23.3% of cardiac cases. In the pediatric outpatient during the period 1969-72 there were 172 RF/RHD patients forming 11 .5% of the total cardiac cases. The incidence of the major criteria of RF in these cases were carditis 57% ,polyarthritis 40%, chorea 3 .5%, erythema marginatum 1.7% and nodules 0.1%. In another series of 156 patients with chronic rheumatic valvular diseases mitral valve was involved in 137 (88%) cases, combined mitral valve disease 11 (7%) cases, and the aortic valve alone was affected in 7(4.5%) cases.

A prospective study of acute rheumatic fever at a large public hospital in Karachi (Robinson et al., 1966) in 57 cases of RF 43 (75%), had carditis, and of these 26 (61%) had marked cardiomegaly, 17 (40%) had gross cardiac failure and 8 (19%) died during the period of their acute illness. Positive throat culture for beta hemolytic streptococci were found in 42 cases in a school survey in Karachi (Abbasi et al., 1966). In another study from Karachi iRahimtoola and Rehman, 1972) reported higher incidence of arthralgia as compared to a Puerto-Rican study. The incidence of carditis was high, and the incidence of erythema marginatum that of nodules was low in this study. Malik and Ahmad (1979) studied 47 cases of RF in Islamabad during 1977, including 19 children (5-15 years old), of these 17 children had first attack and 2 children had a relapse. There were 28 adults with RF out of which 18 had established RHD and 10 had first episode of rheumatic fever.

King and Mohamniad (1979) reported an unusually large epidemic of acute glomerulonephritis in South Trinidad, the third outbreak on that island in fifteen years, in 68 I cases the majority were post-streptococcal acute glomerulonephritis, associated with impetiginous sores, which are common among children in Trinidad.

Rheumatic Heart Disease in the Muslim Countries.:

Ekrnecki et al. (1970) in a survey of 5,100 labourers in Istanbul found RHE in 6.4/1,000 males and 1.42/1,000 females. In Turl-ey, in the Sirnan area RHD prevalence rate was 5.4/1,000 (5 1/9, 389) and in Etimesgut school population RHD was found in 2/1,000 in the upper socioeconomical group and 10.7/1,000 in the lower socio-economical group (Saracler, 1977). RHD constituted 25.4% of all cardiovascular diseases in Sudan and the Ministry of Health reported that 14,885 cases of RF and RI-ID were admitted to hospital compared to 59,446 cases of hypertensive and ischaemic heart disease (Halim and Jacques, 1971; Ismail and Gaber, 1970, 1972). A large number of these cases were children and young adults; and in one series 44.5% of patients were below the age of 29 years. In 54.4% cases in one series of RHD had no history of rheumatic fever.

In Iran, RI-ID constituted 30-50% of cardiac cases from various hospitals (Abolfotoh and Alam, 1970). In a cooperative study by Gharagoloo et al. (1972, 1975), in Tchrán 15,353 workers of the Insurance Organization were studied during 1971-73 from a total of 56,802 workers on the basis of 3.7 per family, and RI-ID was prevalent 55/1,00,000. In a primary school survey the incidence of RHD was found to be 10/10,000 (WHO, 1970). Information on the status of RHD in Saudi Arabia indicates that this disease is not as prevalent as in Egypt (Norton, 1981). The prevalence of RHD in Kuwait is regarded to be low (El-Ginçly and Ahmad, 1981).

Hanafiah (1975) in a study of 2,943 elementary school children (6-14 years) in Jakarta reported 1 case of RHD (0.3%). Out of these school children, throat swab were taken from 1,043 children. From adult hospital statistics in two big cities in Indonesia during 1968-71 RF and RHD constituted 13.6% and 27.0% of all cardiac cases. The incidence of admitted adult patients with RFRHD in 3 General Hospitals (1971-72) were 28% while in the private hospitals, in the same period, it was 9.1%.

In a secondary school survey in Karachi by Abbasi et al. (1966), 4,002 boys and girls between the ages 8-14 years were examined, RHD was found in 1.8/1,000. In a survey in the Frontier Province of Pakistan by Ilyas et al. (1979) in 20,450 school children, in Peshawar 124 cases of definite RI-ID were found in Peshawar (7/1,000); mitral regurgitation was the dominant lesion (47%) mitral stenosis was present in 31%. In the Chitral group a significantly higher prevalence of RHU, 11/1,000 was found, with mitral regurgitation in 34% and mitral stenosis in 34%. In our hospital experience rheumatic heart disease constituted about 5% of all medical cases and 20% of all cardiac cases, in over 10,000 medical cases seen over a 5 years period (Ilyas et al., 1979, 80).

Pure or predominant mitral stenosis below the age of 20 years was found in 46 children in a school population of 20,450 children, constituting 30% of RI-ID (Ilyas). During a 5 years period 53 cases of juvenile mitral stenosis were seen in our Unit, amounting to 34% of rheumatic heart diseases and 4% of mitral valve disease. The pathogenesis of juvenile mitral valve stenosis is not known but throat infections, persistent or recurrent infections, malnutrition, and racial influence are possible factors (Al-Baharani et al., 1966). In Bangladesh 78 new cases of RF and 150 cases of chronic valvular diseases were treated in 5 years in a Medical College Hospital in Dacca and RI-ID comprised 35% of all cardiac cases (Ibrahim, 1957; Ullah, 1975).

Diagnostic Pitfalls in RFHD

In Dr. Sami Ulus Children's Hospital, Istanbul, 22 patients (4-11 years old), with characteristic picture of rheumatic fever, were studied for the presence of antigammaglobulin antibodies (Bilir and Amc, 1975). In 17 (77%) cases the latex fixation test was positive. In a series of 100 auricular biopsies obtained from mitral valvotomy in Rawalpindi, Aschoff's bodies were present in only 10% of cases, a much lower percentage than most of the western series (Ahmad, 1975). Forty eight (48%) of school children in Khartoum had high ASO titres, and positive for group A beta-hemolytic streptococci were obtained in 17 (35.4%) (Ismail, 1972). Tazi (1972) has reported that associated signs 'minor', do not find a place in the classification of modified Jones criteria and were frequent in Morocco, i.e. 22% in a series of 44 cases. Other symptoms, such as microscopic hematuria were found in 20% of the cases, but disappeared in the first stage in some cases. The average age of patients leaving Rabat Centre was 18.4 years. Gharagoloo (1972) in epidemiological study from Ibadan, during 1969-70, reported positive

streptococcus incidence of 8% of cases with previous history of rheumatism and in 7% cases with previous history of nephritis. El-Kholly and co-workers (1974, 1975) have reported that the streptozyme test, 'streptozyme measured antibodies', is relatively easier to perform, and has some promise with advantages in sensitivity but not in specificity.

Strasser and Rotta (1973) in a WHO collaborative project, from a total of 4,000 sera examined from Algeria, Burma, Kenya, Mongolia, Nigeria, Pakistan, Thailand, and Togo showed that higher ASO titres (over 199 units). from these tropical and subtropical countries were present in greater percentage, as compared to the countries in temperate zones in the Northern hemisphere.

In Khartoum in one series of RHD 55% of cases gave no history of RF; and 48% of school children had high ASO titre (Ismail et al., 1970, 1972). In a mammoth study from New Delhi, screening 40,000 school children with RHD prevalence of 11/1,000 history of RF was present in 19% of cases only, and the incidence of beta-haemolytic streptococcal infection was present in 24% of cases (Shrestha and Padmavati, 1979).

Yousaf and co-workers (1972) from Kuwait, have demonstrated that in rheumatic mitral stenosis the diastolic slope of mitral echocardiogram remains essentially the same at heart rate below 100/mm. in patients with sinus rhythm. Ayoub and co-workers (1962, 1966, 1974) have reported on newer antibodies.

Surgical Reports from the Muslim Countries

Facilities for cardiac surgery are available in Istanbul, Ankara, Rabat, Cairo, Baghdad, Tehran, Karachi, Rawalpindi, Riyadh, Kuwait, Beirut, Kaulalumpur, and Jakarta. Yousaf and Shafie (1978) have reported from a follow-up of valve replacement in Kuwait that high frequency of advanced rheumatic heart disease was present in the cases undergoing cardiac surgery.

Ozcan et al. (1970) from the Hacettepe Children Hospital, Ankara has reported that 263 patients underwent cardiac surgery for RHD, including mitral stenosis 84(32%) cases, and 10/84 (12%), were under the age of 15 years. Out of 799 RHD cases in the Karachi study, 580(73%) required surgery, and out of 100 cases requiring mitral valvotomy 21 (20%) cases were under the age of 20 years (Syed et al., 1967). Similar information has been available from the Rawalpindi Centre (1974).

Ben Ismail et al. (1971, 1972, 1978) from Tunis have reported that tricuspid regurgitation which usually disappears during the postoperative period resurges in the latter phase. In their series pre-cappillary pulmonary arterial hypertension showed a tendency towards regression in the majority of cases. Encouraging results from replacement of mitral valve have also been reported from Algeria and Uganda (Ben Nasseur et al., 1978; Chovrot et al., 1948; D'Ahrcla et al., 1979; Haddam, 1964). Ben Ismail et al. (1978) have recently reported 100 cases of mitral commissurotomy in children 15 years old or less, suffering from rheumatic mitral stenosis highlighting the problems of juvenile mitral stenosis in Tunis. Mitral stenosis in children characterised with severity of functional impairment and considerable hemodynamic changes with pulmonary hypertension. The early results of mitral commissurotomy in this series were satisfactory with clinical improvement and low mortality, but in the long term follow-up, progressive deterioration in the clinical state of these patients, resulting from restenosis, have been observed. Magdi Yacoub has contributed to several aspects of surgery of rheumatic heart disease (Yacoub et al., 1978).

In a comparative study from Tehran by Aryanpur et al. (1978) thirty nine children, 7 to 10 years old, with rheumatic mitral stenosis and pulmonary hypertension, were randomly assigned to open commissurotomy (17 patients) and closed commissurotomy (22 patients). In the closed commissurotomy group, three patients (13.6%) had poor results; and one (died 2 days after the operation and two required mitral valve replacement because of massive mitral regurgitation and 77.2 percent (17/22) showed significant improvement. In the open commissurotomy group, there were no deaths and no patients required mitral valve replacement. Forty seven percent (8/17) showed significant improvement. The decrease in pulmonary wedge pressure was more significant in the open commissurotomy group.

Prevention of Rheumatic Fever Heart Disease

Preventively, ideally, a vaccine to the incriminating streptococcus could be the best weapon for the eradication of RF. The cost of mass treating pharyngitis (undetermined) in susceptible groups i.e. schools and barracks outweighs, cost-benefits, of prevention. WI 10 Committee on prevention (1980) has emphasised that the clinical suspicion of possible streptococcal throat remains the main platform on which further action should be taken because of the poor laboratory facilities in most of the developing countries. Aryanpur (1977, 1980) has hypothesised that infantile malnutrition in the first six months of life, imbalancing immune system, many hypersensitized susceptible host, in the developing countries leading to RF. Rheumatogenicity of streptococci is variable between countries, and appears to be more marked in the developing countries.

The reasons for ineffective control of rheumatic fever-heart disease in the muslim countries include unsatisfactory improvement in socio-economic conditions, lack of concentrated efforts for prevention, ignorance of the epidemiological lesson that the disease is preventable, and uncertain approach towards secondary prevention (Ayoub, 1970; Sanayal et al., 1974). In a rheumatic fever prevention programme in Tehran (1972) covering 12,500 workers from a population of 40,000 people, there were 14 new cases of RF. 4 new episodes of RF in cases of RHD reaction rate with benzathine penicillin is far too lower than the ill founded fears, for example out of 50,000 injections the reactions were found in 0.19% and there were only 3 instances of anaphylactic reactions and all of these were resuscitated (Wanamaker, 1981). Padmavati (1981) has reported 1.1% reaction-rate, including all sorts of subjective and objective reactions.

In a two years controlled trial of benzathine penicillin treatment of persons with A-group streptococcus infection in 100 apparently normal Egyptian families and 84 families with a child suspected of having rheumatic heart disease, a marked decrease in prevalence of the infection rate (10.0%-5.4%) was documented with, a modest decrease in introduction into families but no decrease in spread within non-rheumatic families (El-Kholly et al., 1972, 1973). Results in suspected rheumatic families were similar. Spread within families was more marked in household contacts, 2 to 14 years old, in the Rabat Study in three years one out of 106 girls had rheumatic fever relapse (Tazi, 1972). Chorea often has a prolonged incubation period after previous streptococcal infection, and long term follow have shown RF recurrence in about 15% of cases, hence the need for prophylaxis. Prevention and treatment of bacterial endocarditis has been reviewed (Taranta et al., 1972; Rahimtoola, 1978; Fahiani, 1972).

Recommendations

We know that rheumatic fever decreases with increasing development in countries, but the temptation to wait for the disease to take its natural course, should be avoided. As four fifth of the world's children live in the developing countries, only aggressive preventive strategies could make the difference (El-Sadr et al., 1979; Ilvas, 1981; Hafeez Khan, 1972).

Evaluation of Jones criteria for the diagnosis of acute RF should be carried out in muslim countries. Three week versus four weekly injection regimes of benzathine penicillin should be critically evaluated from the standpoint of infection proof chemoprophylaxis. Penicillin prophylaxis is recommended upto the age of 20 years or for 5 years after the last episode of RF. Tetracycline management of pharyngitis should be brain washed-out (WHO, 1970; Billoo et al., 1968; Benallegue et al., 1966; Benghazal, 1965).

Collaborative studies among the muslim countries should be carried-out and WHO reference laboratory for streptococcus should be developed. Further studies are required for serotyping of streptococci and for newer antibodies. Joint collaborative projects with the developed countries should be developed (Shiokawa et al., 1977). A research cell may be organized in the International Organization of Islamic

Medicine, Kuwait, to prepare and execute prevention strategies for RFHD.

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