ACUTE RHEUMATIC FEVER IN YOUNG MEN

A CLINICAL AND EPIDEMIOLOGICAL STUDY

BY

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Since the turn of the century, acute rheumatic fever has become increasingly uncommon (Glover, 1930; Hitchens, 1956). Penicillin treatment of upper respiratory tract infections and the increasing use of antibiotic prophylaxis have contributed to this decline in recent years, but improved social and economic conditions and the changing pattern of streptococcal illness are probably more important. Nevertheless, rheumatic fever remains a serious problem which may become a menace during epidemics of streptococcal infection (Coburn and Young, 1949; Winblad, Malmros, and Wilander, 1947). Leff (1956) estimates that 4,000-5,000 school children in England suffer from an attack of acute rheumatic fever each year, and Knowelden (1949) has shown that the mortality from rheumatic heart disease has not paralleled the declining mortality from acute rheumatic fever, particularly in adults.

Epidemics of streptococcal infection are particularly common in institutions, so that rheumatic fever would be expected more often than in the general population. The barrack conditions of Army units in the United Kingdom form typical closed communities which provide epidemiological information not readily available from civilian sources.

This paper describes a clinical and epidemiological study in young soldiers, which was undertaken to ascertain the incidence of initial and recurrent attacks of acute rheumatic fever (as diagnosed by predetermined criteria); the pattern, frequency, and persistence of heart damage; and the importance of the preceding upper respiratory tract infection. Epidemiological data, based on the notification rate of rheumatic fever in the Army, has already been reported (Rosenbaum and Slater, 1957) and the present investigation extends this, using strict criteria for the diagnosis of the disease.

Material

Information was obtained from or about 379 soldiers who had suffered from an attack of acute rheumatic fever while in the army. 90 per cent. of the patients were 17 to 21 years of age (mean 18.8 yrs) and all except three were under 30 years old. 51 unselected, consecutive cases were treated by one of us between 1954-56 from the day of admission to the Cambridge Military Hospital, Aldershot, to the time of their final discharge from hospital between 3 and 5 months later. Clinical data concerning a further 67 patients was obtained from consecutive case records of patients suffering from acute rheumatic fever at the Cambridge Military Hospital in 1953. These records were full and carefully kept. The clinical features of these patients (including the frequency and pattern of cardiac lesions) were similar to those present in the patients seen personally, and their treatment had been substantially the same. Therefore, both groups of patients will be considered together. The data concerning the pattern and frequency of heart lesions is derived from the 51 cases seen personally, plus the first thirty consecutive case records analysed.

Information about the remaining 261 patients was obtained by examining the official medical documents at the War Office (AMD Statistics) of all men who had been notified as suffering from acute rheumatic fever in 1952, and all those reported as suffering from acute rheumatic fever with heart involvement in 1953. The relevant information was available as an official copy of the in-patient case record, the report of the Medical Board proceedings on the patient's discharge from the Army, and a copy of the original medical data made out when the man had first joined the Army.

A total of 1,179 soldiers aged 17 to 22 were questioned personally to assess the frequency of a past attack of acute rheumatic fever in the general military population from which our patients were derived.

The criteria for the diagnosis of acute rheumatic fever was based on those of Duckett Jones (1944) and were similar to the criteria used in the Anglo-American therapeutic trial (1955). Rheumatic manifestations were divided into five major and five minor criteria. For a diagnosis of acute rheumatic fever, two major, or one

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major and two minor criteria had to be present at some time during the patient's illness. The major criteria were carditis (see below), polyarthritis (see below), chorea, subcutaneous nodules, and erythema marginatum. The last three features are rare (1 to 2 per cent.) in this age group, so that carditis and polyarthritis were the only major criteria actually used. The minor criteria were fever (oral temperature above 99.3° F. on two or more occasions in 24 hours, or above 100.3° F. on any one occasion), an erythrocyte sedimentation rate of over 20 mm./hr (Westergren), a prolonged P-R interval (over 0.22 sec.) on the electrocardiogram, a definite history of acute febrile sore throat within the preceding 35 days, and a reliable history of past rheumatic fever and/or chorea or evidence of pre-existing rheumatic heart disease. Carditis was diagnosed and used as a major criterion if one or more of the following features were present: pericarditis (pericardial friction rub, pericardial effusion, or electrocardiographic changes diagnostic of pericarditis); the development of apical or basal diastolic murmurs (or, if present on admission, their subsequent disappearance); the development or change of an apical systolic murmur (by two or more grades, similar to those described in the Anglo-American trial, 1955); the development of Wenkebach A-V block or a wandering pacemaker confirmed by electrocardiography. None of our patients developed cardiac failure and a change in heart size was never used as the only evidence of carditis. Only one patient had evidence of old rheumatic heart disease on admission.

Polyarthritis meant pain on movement, and tenderness, swelling, redness, and heat of the affected joints. All the patients had these signs in more than one joint except for one man whose arthritis was monarticular. However, this patient also had prolongation of the P-R interval on the electrocardiogram. Multiple joint pains in the absence of objective changes and a monarticular arthritis without carditis were not accepted as criteria for diagnosis.

A diagnosis of a past attack of rheumatic fever was only accepted if the man had been in bed for at least 6 weeks and if two or more joints had been painful and swollen at some time during the illness.

In the classification of the cardiac lesions, the following terms need explanation: a *persistent lesion* is defined as one which persists until the patient's final discharge from hospital (the time that a patient spends in hospital naturally varies greatly, but the average was 5 months with a range of 3 to 10 months); an *abnormal murmur* means either the development of an apical or basal diastolic murmur or a change in intensity of an apical systolic murmur by two or more grades (see above); *abnormal electrocardiographic changes* mean either a prolonged P-R interval, other evidence of an atrio-ventricular block, or evidence of a localized pericarditis; *pericarditis* means either a pericardial friction rub or a pericardial effusion or both.

Methods

Assessment of the progress of the 51 patients cared for by one of us (J.D.H.S.) was made by recording all

relevant clinical and pathological findings on a specially prepared chart. Daily physical examination was made during the acute stage of the disease, particular attention being paid to the state of the heart. Electrocardiographic tracings were taken on admission, and then at standard intervals (alternate days for 8 days and weekly thereafter) as well as when clinically indicated. After the acute stage, clinical and electrocardiographic assessment was made at 1 to 2 weekly intervals.

The patients were treated with rest in bed, salicylates and penicillin. The duration of the rest in bed and the rate of subsequent mobilization was carried out according to a standard schedule, which, in the absence of clinical evidence of continuing rheumatic activity, depended chiefly upon the behaviour of the erythrocyte sedimentation rate (Westergren). Salicylate was given as aspirin tablets in sufficient amounts to procure plasma salicylate levels of at least 30 mg. per 100 ml. 2 hours after the last dose. These were estimated weekly. Penicillin (procaine penicillin 500,000 units twice daily intramuscularly) was given to all cases for the first 10 days and prophylaxis against further streptococcal infection was secured by 0.5 g. sulphadimidine twice daily for the rest of the patient's stay in the Army. Treatment was started within 48 hrs of the onset of symptoms in 45 per cent. of cases, and within 7 days in all patients except two who had been ill for 10 and 14 days respectively.

Results

Annual Incidence of Rheumatic Fever.—Table I shows the yearly frequency of acute rheumatic fever notifications in the military population of the United Kingdom from 1947 to 1954. During this period of time there has not been any detectable decline in the official returns for the disease, the average figure being 1.10 per 1,000 per year. However, more detailed analysis of the records for 1952 and 1953 showed that in 57 (22 per cent.) the reported diagnosis had to be discarded: 36 may have had mild rheumatic fever but our diagnostic criteria were not satisfied, ten had old rheumatic heart disease, and the rest past rheumatic fever, idiopathic pericarditis, bacterial endocarditis, or the effort syndrome. This

TABLE I
REPORTED YEARLY INCIDENCE OF RHEUMATIC FEVER
NOTIFICATION IN THE BRITISH ARMY

Year	Reported Attack Rate per 1,000
1947	0.9
1948	0.8
1949	0.8
1950	1.2
1951	0.9
1952	1.3
1953	1.7
1954	1.0
Average	1.1

makes the incidence of the disease, as defined by our criteria, 1.01 per 1,000 for all attacks and 0.70 per 1,000 for first attacks. Applying a similar correction factor to the reported annual attack rate for 1947-54, the incidence of acute rheumatic fever (as defined) is about 0.85 per 1,000 or 0.59 per 1,000 for first attacks.

Distribution of Rheumatic Fever Attacks according to Length of Service.—The majority of attacks occur within 6 months of enlistment and there is a 1 to 2-month delay before the peak is reached (Figure). This is true for both initial and recurrent attacks. By contrast, the distribution of admissions for all other diseases is at a maximum during the first month of military service and then falls off progressively. The subsequent fall in the number of rheumatic fever attacks begins before the usual period of training in the country is complete, although some of the decline from the fourth month onwards may

be explained by postings overseas where rheumatic fever is less commonly notified.

Frequency of a Previous Attack in Patients with Rheumatic Fever.—Table II shows that 31 per cent. of the 118 patients seen at the Cambridge Military Hospital had a past history of rheumatic fever by our criteria.

TABLE II
FREQUENCY OF PAST RHEUMATIC FEVER IN 118
RHEUMATIC FEVER PATIENTS

Source of material	No. of Cases	Past Rheumatic Fever	
		Definite	Possible
Case Notes ..	67	21 (31 per cent.)	5
Personal Series ..	51	16 (31 per cent.)	13

Figure.—Distribution of cases of rheumatic fever by length of service.
Black line (—) shows smoothed trend of hospital admissions for all diseases (U.K.).

The relevant information was available in only 119 of the 203 official records which remained after discarding the cases which did not satisfy our criteria (Table III). This means that the proportion of cases with a past history of rheumatic fever is almost certainly too high because of the natural tendency to record only positive findings. Even including the cases in which a past history of the disease was not mentioned, the proportion is 22 per cent., so that the true value lies between this and 39 per cent. which agrees with the figure of 31 per cent. obtained directly from the patients.

TABLE III

FREQUENCY OF PAST RHEUMATIC FEVER IN THE OFFICIAL MEDICAL RECORDS OF RHEUMATIC FEVER PATIENTS

Past Rheumatic Fever	No. of Cases	Past Rheumatic Fever	
		No.	Per cent.
Mentioned	119	46	39
Not Mentioned	84	—	—
Total	203	46	23

Time Interval since the Previous Attack in Patients with Recurrent Rheumatic Fever.—Table IV shows the length of time since the last attack in 35 patients seen at the Cambridge Military Hospital. 74 per cent. had had their last attack over 5 years previously. In contrast, among 22 patients admitted with possible mild rheumatic fever who gave a past history of the disease but who did not fulfil our criteria, only 36 per cent. had had their previous attack over 5 years beforehand.

TABLE IV

YEARS SINCE THE LAST ATTACK IN 57 PATIENTS WITH DEFINITE OR DUBIOUS RECURRENT RHEUMATIC FEVER

Years since Last Attack	Diagnosis			
	Certain		Dubious	
	No.	Per cent.	No.	Per cent.
Within 5	9	26	14	64
Over 5	26	74	8	36
Total	35	100	22	100

Frequency of a Past Attack of Rheumatic Fever in Young Healthy Soldiers.—Table V shows that 1.02 per cent. of 1,179 variously collected young soldiers had suffered from an attack of definite rheumatic fever in the past.

TABLE V

FREQUENCY OF A PAST ATTACK OF RHEUMATIC FEVER IN HEALTHY SOLDIERS AND PATIENTS WITHOUT RHEUMATIC FEVER

Source of Material	No. of Cases	Past Rheumatic Fever			
		Definite	Probable	Total No.	Per cent.
Surgical Patients in Hospital	175	4	0	4	2.3
Recruits' Depot R.A.M.C.	403	3	2	5	1.2
Recruits' Depot, R.M.P.	181	1	0	1	0.5
Cases of Sore Throat	235	3	1	4	1.7
Contacts of Sore Throat Cases	185	1	2	3	1.6
Total	1,179	12 (1.02 per cent.)	5	17	1.4

Preceding Upper Respiratory Tract Infection.

Table VI gives details of the preceding throat infection in 81 consecutive, unselected cases of rheumatic fever. 55 (68 per cent.) had had a sore throat within the previous 35 days, although it was so mild in eighteen that the patient did not report sick because of it. Group A β -haemolytic streptococci were isolated from the throat in 49 (60 per cent.) on admission. This figure refers to the isolations resulting from inoculating a blood agar plate and incubating aerobically and anaerobically overnight. Although only 55 patients (68 per cent.) had suffered from a noticeable sore throat within the preceding 35 days, a further twelve were harbouring Group A streptococci in the throat; in other words, evidence of a preceding throat infection was obtained from 67 (83 per cent. of the 81 patients).

TABLE VI

THROAT IN 81 CASES OF ACUTE RHEUMATIC FEVER

Group-A Streptococci		Isolated	Not Isolated	Total	
				No.	Per cent.
Preceding Sore Throat	Yes	37	18	55	68
	No	12	14	26	32
Total		49 (60 per cent.)	32 (40 per cent.)	81	100

Frequency and Pattern of Heart Involvement.

Out of 81 young men with acute rheumatic fever, 25 (31 per cent.) showed clinical or electrocardiographic evidence of active cardiac damage as defined by our criteria. An abnormal murmur appeared or disappeared in thirteen (16 per cent.) patients, ten of whom also showed other evidence of active carditis. Nine patients (11 per cent.)

developed persistent cardiac lesions which consisted of abnormal murmurs in all except one patient. Table VII shows the types of heart involvement encountered. Pericarditis was seen in twelve (15 per cent.) patients, a basal diastolic murmur developed in eleven, an apical systolic murmur in five, and an apical diastolic murmur in six. Only fourteen (17 per cent.) patients showed electrocardiographic abnormalities (the P-R interval was normal in the 56 cases without carditis and in the 31 patients seen over the same period of time who were suspected of having mild rheumatic fever but who did not fulfil our diagnostic criteria). In fourteen patients the diagnosis of acute carditis was based in a single abnormal finding; a prolonged P-R interval in six, a pericardial friction rub in three; and, an apical or basal diastolic murmur, Wenkebach A-V block, and a wandering pace-maker in each of the remaining five patients. A significant apical systolic murmur was never the only evidence of carditis.

TABLE VII
NEW HEART LESIONS IN 81 CASES OF
ACUTE RHEUMATIC FEVER

Lesion	No. of Patients	Comment
Pericarditis	12	Pericardial friction rub 6 Pericardial effusion 3 Electrocardiograph changes only 3
Basal Diastolic Murmur ..	11	Transient 6 Persistent 5
Apical Systolic Murmur ..	5	All persistent
Apical Diastolic Murmur ..	6	Transient 3 Persistent 3
Electrocardiograph Changes ..	11	Prolonged P-R (<0.22 sec.) 8 Wenkebach A-V block 2 Wandering pace-maker 1

In Table VIII, the pattern of the heart lesions seen is compared in patients with first attacks and those

with recurrent attacks of rheumatic fever. 16 per cent. of patients who had had the disease before developed persistent heart lesions, whereas only 8 per cent. of patients suffering from their first attack did so. However, this difference is not statistically significant. But, when the number of fresh abnormal murmurs which persist is compared in the two groups (Table IX), ten of twelve such murmurs persisted in patients with recurrent rheumatic fever compared with three out of ten in patients suffering from their first attack. This difference is significant statistically.

TABLE IX
PERSISTENT AND TRANSIENT ABNORMAL MURMURS
IN PATIENTS WITH INITIAL AND RECURRENT ATTACKS
OF ACUTE RHEUMATIC FEVER

Attacks of Acute Rheumatic Fever	No. of New Abnormal Murmurs	No. of New Abnormal Murmurs which Persist
First (15 patients) ..	10	3
Recurrent (10 patients) ..	12	10

Discussion

In answer to the question how commonly rheumatic fever develops in young men living as a community, our results show that the average frequency of first attacks of definite rheumatic fever is about 0.59 per 1,000 per year. This figure for initial attacks, rather than the value obtained for the total number of cases seen (0.85 per 1,000 per year), provides a valid estimate of the current incidence of rheumatic fever under the conditions prevailing at the time of the study. It is slightly lower than the figure of 0.69 per 1,000 per year reported by Hewitt and Stewart (1952) for school children aged 5 to 15 years in the period 1947-51, although it is more than double the finding of Leff (1956) for children aged 0 to 14 years in the years 1951-53. Even in the 1930s, when rheumatic fever

TABLE VIII
PATTERN OF CARDITIS IN INITIAL AND RECURRENT ATTACKS OF ACUTE RHEUMATIC FEVER

Attacks of Acute Rheumatic Fever							First (50)	Recurrent (31)	Total (81)
No. of Patients with Carditis							15	10	25
Lesions	Persistent	Abnormal murmurs					3	5	8
		Electrocardiograph changes only					1	0	1
		Total					4	5	9
	Transient	Abnormal murmurs					4	1	5
		Electrocardiograph changes only					5	3	8
		Pericarditis only					2	1	3
Total					11	5	16		

was more common, only a small proportion of first attacks occurred in children over the age of 12 (Wilson, 1940), so that the incidence that we found suggests that a young man is exposed to a special risk of rheumatic fever under service conditions in England. This is not proof, however, because an adequate civilian control group cannot be assembled. Unless there is some particular (usually medical) reason, all young men between 17 and 21 years of age are enlisted in one of the military services. Therefore we looked for variations of incidence within the Army in England, and Fig. 1 shows that susceptible individuals contract rheumatic fever within the first few months of community living, which provides independent evidence that service conditions increase the risk of rheumatic fever.

Why this should be is more difficult to explain. The prevention of rheumatic fever by prophylaxis against streptococcal infections (Thomas and France, 1939; Wannamaker, Rammelkamp, Denny, Brink, Houser, Hahn, and Dingle, 1951; Houser, Eckhardt, Hahn, Denny, Wannamaker, and Rammelkamp, 1953) provides the most compelling evidence that Lancefield Group-A streptococci are necessary for the development of the disease. Serum anti-streptolysin-O estimations were not performed in our patients, but 60 per cent. were harbouring streptococci in the throat and evidence of a preceding throat infection was obtained from a total of 83 per cent. This agrees with the figures obtained from other series (McCarty, 1952).

However, using material from a similar population, Brumfitt, O'Grady, and Slater (1959) have found that although Group-A streptococci are often isolated from patients with endemic acute sore throat, subsequent rheumatic fever is rare compared with the figure of about 3 per cent. which has been widely quoted from the evidence of Rammelkamp, Denny, and Wannamaker (1952) in young American airmen. The British workers suggest that a benign form of "streptococcal" sore throat may exist endemically in which the streptococcus plays an opportunist role. In epidemics of acute sore throat the rheumatic fever attack rate may rise as high as 10-16 per cent. (Paul, 1943; Winblad and others, 1947) and, under these conditions, actual invasion of the pharyngeal tissues by streptococci probably occurs. Although small, unnoticed epidemics of genuine streptococcal infection cannot be excluded in the present study, it would seem that some other factor apart from the presence of Lancefield Group-A streptococci is necessary to explain the relatively high incidence of first attacks of rheumatic fever among military recruits in England. This is in keeping with the results of Saslaw and Streifeld

(1956), who found no cases of rheumatic fever in a large number of school children with clear evidence of Group-A streptococcal infection.

The effect of a previous attack of rheumatic fever on the risk of recurrence when young men live as a community is well shown by our figures. We have found that about 0.85 per 1,000 soldiers develop rheumatic fever annually. Assuming a military strength of 430,000, an average of about 366 cases of rheumatic fever occurs each year. Of these, 110 (30 per cent.) will have had a previous attack. But there are only about 4,300 (10 per 1,000) healthy soldiers who have had the disease before, so that the incidence of acute rheumatic fever in these men is 1 in 39. By contrast, of the remaining 425,700 soldiers who have never had rheumatic fever before, 256 develop the disease; an incidence of 1 in 1,663. Therefore a young man who has already suffered from an attack of rheumatic fever in childhood which was sufficiently mild to leave his heart unscathed is about 42 times more likely to succumb to another attack than his more fortunate colleague who has never suffered from the disease. This emphasizes the need to advise patients with rheumatic fever to avoid institutional life. From the purely military point of view, by exempting 1 to 10 per cent. of recruits because of past rheumatic fever, or by enforcing continuous prophylaxis in about a third of the total number of cases in the Army could be prevented. The importance of this is brought out by our finding that persistent cardiac damage in young men with previously normal hearts is more common after a recurrence of rheumatic fever than after a first attack.

Over 70 per cent. of our patients with a past history of rheumatic fever had had their last (and usually only) attack over 5 years previously. Despite this long interval, increased susceptibility appears to persist into adult life. The duration of continuous prophylaxis with penicillin or sulphonamides following rheumatic fever in childhood is still a matter of opinion (American Heart Association, 1955; Royal College of Physicians Rheumatic Fever Committee, 1957), but it would appear that in England protection is still required in early adult life if the patient is exposed to an environment which increases the risk of rheumatic fever, however long before the last attack of rheumatic fever had occurred. This agrees with the findings of Bywaters and Thomas (1958), who state that "there is manifestly no great falling off of recurrence rates after puberty". Treatment of acute streptococcal sore throat with courses of penicillin long enough to eradicate the streptococcus (Wannamaker, Denny, Perry, Rammelkamp, Eckhardt, Houser, and Hahn, 1953; Brumfitt and

Slater, 1957), will considerably reduce the risk of clinically manifest rheumatic fever (Catanzaro, Stetson, Morris, Chamavitz, Rammelkamp, Stolzer, and Perry, 1954), but Weinstein, Boyer, and Goldfield (1955) have shown that, in children, the incidence of rheumatic heart disease following the penicillin treatment of scarlet fever is probably little different from that in untreated patients. This emphasizes how important it is to prevent streptococcal infections rather than to treat them with penicillin as they arise.

Cardiac manifestations in acute rheumatic fever are difficult to compare precisely with other series because they depend so largely on subjective findings. The varying interpretations of the significance of apical systolic murmurs, the difficulties of hearing soft diastolic murmurs, and the confusion between an apical diastolic murmur and a normal third heart sound are well shown in recent reports (Anglo-American trial, 1955; Lazar, Maas, Lipscomb, Hammond, and Rantz, 1957). Nevertheless, the similarity of the incidence of significant, not previously recorded, murmurs in our patients (16 per cent.) with that described by Lazar and others (1957) in young American airmen (19 per cent.) is probably not fortuitous, because the patients were comparable in other respects. Cardiac involvement is well known to be much more common in children than in adults, but it is interesting that the incidence of persistent heart murmurs in our patients (11 per cent.) is similar to the incidence of 1 in 8 described in the Anglo-American trial (1955) for the group of children under 16 who resembled our cases most closely (cardiac group A); and it may be that the important factor which leads to heart damage is the recurrent attack of rheumatic fever rather than age. Of course, a period of follow-up of 3 to 5 months is not long enough to be sure that patients without evidence of heart damage at the time of the acute attack will not subsequently develop cardiac murmurs, but the work of Engelman, Hollister, and Kolb (1954) showed that, among young men with rheumatic fever, abnormal murmurs present at the end of the acute attack were still present in 88 per cent. after 5 to 8 years, whereas patients without clinical carditis during the acute attack were still without abnormal murmurs at the follow-up examination.

Summary

An analysis is described of clinical and epidemiological data from 379 young men with acute rheumatic fever in the British Army.

The incidence of first attacks of the disease is about 0.59 per 1,000 per year. A previous attack increases the risk about 42 times.

Evidence is presented which suggests that institutional living carries a special risk of rheumatic fever which cannot be adequately explained by greater contact with haemolytic streptococci.

New heart lesions were seen in 31 per cent. Persistent murmurs developed in 11 per cent., being particularly common in patients who had had a previous attack.

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Rhumatisme articulaire aigu des jeunes gens—étude clinique et épidémiologique

RÉSUMÉ

On présente une analyse clinique et épidémiologique des données concernant 379 jeunes gens de l'Armée Britannique atteints de rhumatisme articulaire aigu.

La fréquence de la première atteinte de cette maladie est à peu près 0,59 par 1000 par an. Une attaque antérieure en fait augmenter le risque 42 fois environ.

On présente des données suggérant qu'une vie communale implique un risque spécial de rhumatisme articulaire aigu, qu'un contact plus fréquent avec le streptocoque hémolytique n'explique pas suffisamment.

Des lésions cardiaques récentes furent observées dans 31% des cas. Des souffles persistants apparurent dans 11% des cas, particulièrement chez des malades ayant subi une attaque antérieure.

**Reumatismo poliarticular agudo en el joven—
estudio clínico y epidemiológico**

SUMARIO

Se presenta un análisis clínico y epidemiológico de

datos sobre 379 jóvenes del Ejército Británico afectados de reumatismo poliarticular agudo.

La frecuencia del primer ataque de esta enfermedad es cerca de 0,59 por mil por año. Un ataque anterior hace aumentar el riesgo 42 veces aproximadamente.

Se presentan datos indicando que una vida comunal implica un riesgo especial de reumatismo poliarticular agudo; un contacto más frecuente con el estreptococo hemolítico no basta para explicar este riesgo.

Lesiones cardíacas recientes fueron observadas en un 31% de los casos. Soplos persistentes aparecieron en un 11% de los casos, particularmente en enfermos con ataques previos.