Preliminary Report on an Epidemic Outbreak of Active Rheumatic Disease in Chile

Since the mid-seventies the South East Metropolitan Health Service (SSMSO) of Santiago, Chile, has been pursuing a line of clinical-epidemiological research in conjunction with programs for the prevention and control of streptococcal infection (SI) and its delayed sequelae, active rheumatic disease¹ and chronic rheumatic cardiopathy (ARD/CRC) and acute glomerulonephritis (AGN). The area served by the SSMSO is inhabited by 700,000 people of low and low-middle income levels, 80% of whom are cared for by the State’s health system, which includes a 1,000-bed general hospital and ten local dispensaries (nine urban and one rural) scattered throughout the area in addition to eight rural posts and one 20-bed rural hospital.

For the purpose of determining the incidence of these diseases over a 10-year period, the epidemiological surveillance of SI and ARD/CRC was added to control activities in 1976 in conjunction with the launching of a National Prevention and Control Program sponsored by the Ministry of Health. The same work was begun for AGN in 1980 in the SSMSO alone.

Since 1977, the SSMSO has observed a sustained downtrend in the incidence of ARD, generally coincident after 1979 with the behaviour of the rates calculated for the Metropolitan Region, of which the SSMSO is a part, and for the country (Figure 1). An epidemic outbreak of AGN was detected in 1984; it continued throughout 1985 and has been slowly diminishing since 1986. After presenting in 1985 the lowest incidence throughout the period of observation, active rheumatic disease has given rise to an abnormal situation, which became obvious in February 1986. During the first third of the year a total of 17 cases was reported (15.08 per 100,000 inhabitants), more than expected for the same period judging by the 1980-1985 figures (6.85 per 100,000). If this situation continues, the annual rate for 1986 will be much higher than the rates seen in the six preceding years (Table 1). Figure 2 shows the estimated rate for 1986, and compares it with that of acute glomerulonephritis during 1980-1985. The ARD outbreak described came on the heels of a similar scarlet fever outbreak in the same geographic area, which began in December 1985 and should correspond to the pharyngeal SI phase that necessarily precedes ARD manifestations.

Table 1. Incidence of active rheumatic disease, cases and rate per 100,000 inhabitants, for 1980-1985 and estimate for 1986 (South East Metropolitan Health Service, Santiago, Chile).

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>22</td>
<td>3.9</td>
</tr>
<tr>
<td>1981</td>
<td>22</td>
<td>3.7</td>
</tr>
<tr>
<td>1982</td>
<td>29</td>
<td>4.7</td>
</tr>
<tr>
<td>1983</td>
<td>30</td>
<td>4.7</td>
</tr>
<tr>
<td>1984</td>
<td>22</td>
<td>3.4</td>
</tr>
<tr>
<td>1985</td>
<td>9</td>
<td>1.3</td>
</tr>
<tr>
<td>1986</td>
<td>17ᵃ</td>
<td>–</td>
</tr>
<tr>
<td>1986</td>
<td>51ᵇ</td>
<td>6.7ᵇ</td>
</tr>
</tbody>
</table>

ᵃFirst four months of 1986.
ᵇEstimated cases and rate for 1986.

¹The clinical diagnosis of acute rheumatic fever (referred to by the author as active rheumatic disease) is based on the criteria proposed by Jones in 1944 and revised by the American Heart Association in 1955 and 1965. The presence of two major criteria (polyarthritis, carditis, chorea, erythema annulare, and subcutaneous nodules) or of one major and two minor criteria (previous episode of rheumatic fever or presence of chronic rheumatic cardiopathy, arthralgias, fever, raised levels of acute-phase reactants—sedimentation rate, C-reactive protein, leucocytosis—and a prolonged PR interval on the electrocardiogram) indicates a high probability of acute rheumatic fever if supported by evidence of a preceding streptococcal infection.

Figure 1. Annual incidence of active rheumatic disease for Chile, the Metropolitan Region (MR) and the South East Metropolitan Health Service (SSMSO), 1975-1985.

Figure 2. Estimated annual incidence of active rheumatic disease for Chile, the Metropolitan Region (MR) and the South East Metropolitan Health Service (SSMSO), 1980-1986.
An epidemic outbreak of ARD affords an unusual opportunity for the study of infection by group A beta-hemolytic streptococci (A-BHS) and its sequelae. This requires a careful examination of the relevant clinical and laboratory parameters of the rheumatic episode proper, of the preceding streptococcal infection, and also of its epidemiological characteristics. It will then be possible to compare the severity, progress and prognosis observed in the endemic phase of the disease; the age, geographic and seasonal distribution; the types of A-BHS involved, and the response to treatment. It also offers an invaluable opportunity for testing the hypothesis of the existence of A-BHS types of different rheumatogenic potential by comparing the strains isolated from rheumatic cases with those isolated from cases of AGN that continue to occur at the same time and with strains isolated from the general population in the area. Their thorough study and examination could shed light on the mechanism of the pathogenic power of A-BHS to produce these late manifestations.

The ARD outbreak is currently under investigation in the SSMSO. The following developments may be tentatively cited as significant:

- An age distribution skewed toward older ages than the age bracket in which the incidence of the disease is highest (5 to 14 years). There are two unmistakable cases in 40-year-olds.
- A-BHS is being isolated from about 30% of pharyngeal smears, far higher than the 6% to 8% seen during the endemic period.
- The cases comfortably satisfy Jones’ criteria. The most frequent major manifestations are carditis and/or polyarthritis. No skin manifestations have been seen. An upturn of chorea is expected in the early spring months (October, November, and December in the Southern Hemisphere), following the normal pattern for the endemic period.
- Most of the episodes are new cases, and cases of recidivation are subjects who have been discharged from secondary prophylaxis or have abandoned the program.
- The energetic immunologic response in all cases measured by tests with antistreptolysin O and antidi-DNAase B. Responses to the streptozyme test are inconsistent.
- The difficulty of eradicating A-BHS from the pharynx is greater than in the epidemic phase.

The strains are being serotyped. In the preceding endemic period, the type isolated from most rheumatic patients and their family contacts was M5.

The observed facts must be properly studied and their significance accurately determined. Meanwhile, all customary measures have been taken for control of the outbreak: epidemiological surveillance, primary prevention of rheumatic disease, protection of contacts at risk in homes and institutions, and reinforcement of adherence by patients to secondary prophylaxis against rheumatic disease.

We have been prompted to report this epidemic outbreak by its unexpectedness and suddenness. It would also be very useful to know what is happening in other geographic areas in regard to the problem presented, particularly to the streptococcal infection that precedes an ARD episode, in order to compare findings in regions and countries where the incidence of the disease is different.

(Source: Dr. Ximena Berrios, Dr. Sótero del Río Hospital, Servicio de Salud Metropolitano Sur Oriente, Escuela de Medicina, Universidad Católica de Chile, Santiago, Chile.)
Editorial Comment

Rheumatic fever is prevalent in many developing countries of Africa, Asia, Latin America and the Caribbean, often starting at earlier ages, and with more severe carditis and higher mortality than in developed countries. In the latter, acute rheumatic fever and chronic rheumatic cardipathy are virtually nonexistent. In developing countries, although their frequency is gradually diminishing, they are more heavily concentrated in the lower socioeconomic strata of the population. Hence, national averages do not reflect the wide socioeconomic disparities that exist in these countries. The lack of systematic control programs and adequate epidemiological surveillance systems makes it impossible to detect the local variations concealed by a national average.

The present report illustrates the early detection of an unusual rise in the number of cases of acute rheumatic fever in an area of metropolitan Santiago that has a control program. Hence, it represents an example of efficient and timely use of information for action. The whole point of epidemiological surveillance lies in the collection of information and in its proper use. It is hoped that a thorough study of this epidemic outbreak of acute rheumatic fever will help shed light on the rheumatogenic potential of the beta-hemolytic streptococcus strains prevalent in that area, and particularly whether the cases in this outbreak are mostly new or due to recidivation. In the former event, they could be local variations in the natural history of the disease and, in the latter, the most plausible explanation would necessarily have to be sought in quantitative or qualitative deficiencies of secondary prevention in the population at risk.

Registration of Chronic Disease in Canada: An Overview

These general remarks on disease registration in Canada were published as a preface to more detailed reports; they bring up to date a previous review (1). Most of the literature on registries is focused on specific diseases and is too extensive for complete review. Some authors, however, have provided a more global perspective (2-6). Recent reviews relating to particular disease groups include cancer (7-10), congenital malformations (11), and rheumatic diseases (12).

Various definitions and typologies of registries have been proposed (3). According to Weddell (3), “the principal objectives of registries can be summarized as collating information collected from defined groups over time, which may be used in the prevention or treatment of disease, the provision of after-care, the monitoring of changing patterns of disease and medical care, and the evaluation and planning of services."

Weddell also points out that “registers, designed to collect information on one specific topic, must be distinguished from master patient files and record linkage systems, which provide means to collect, store and retrieve information on many topics not predetermined or limited in their scope.” This is an important distinction which leads to the question as to whether it is necessary to have a separate registry for each disease rather than a single system in which each individual is followed and all disease episodes recorded. The latter approach has long been anticipated as a spin-off from centralized health insurance (13) but is slow in coming. However Roos and Nicol (14) have demonstrated that it is feasible in the Canadian context.

It is sometimes claimed that the patients themselves benefit from being included in a disease registry because of more efficient follow-up. This may be true in some special cases (e.g. Pap smear, handicap) but would be difficult to support in general, since it presupposes that follow-up does more good than harm which needs to be shown. Nor does the individual physician have much to gain from a disease registry unless he/she is contributing enough patients to make survival analysis worthwhile. Clearly most, if not quite all, the benefit is epidemiological, in the broadest sense of the term, and it is difficult to maintain the interest of individuals in an exercise for the public good, however well-intentioned they may be. Population based registries cannot rely on notification by the physician but must have access to hospital, laboratory and death records to achieve completeness. Making disease notification obligatory by law does not help, as we know from infectious disease notification. However Enterline et al. (15) have