

Bone and joint tuberculosis in Denmark

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Epidemiologic data on 100 patients with bone and joint tuberculosis reported in Denmark from 1980 to 1984 are presented. The annual incidence of skeletal tuberculosis remained unchanged during the period, although most other forms of tuberculosis showed a decreasing trend. Eighteen per cent of all the cases of bone and joint tuberculosis were found among young first generation immigrants, notably from Asia. In the native Danish population, bone and joint tuberculosis was almost exclusively found among the elderly. The lesions were most common in the spine and hip. Thirty per cent of the patients had a previous history of pulmonary tuberculosis.

The prevalence of tuberculosis in the developed countries has shown a steady decrease in the twentieth century (Grzybowski 1983). However, reports from Great Britain have demonstrated a new risk group consisting of young immigrants of Asian origin (Newton et al. 1982, Sammon 1983, Davies et al. 1984). In recent years, Denmark has experienced an increasing immigration from areas with a high prevalence of tuberculosis. We have analyzed the incidence and location of tuberculosis in Danish natives and immigrants.

Patients and methods

All the patients diagnosed in Denmark with new or reactivated tuberculosis are reported to The Danish Institute of Clinical Epidemiology. We reviewed all the patients with a diagnosis of tuberculosis reported from 1972 to 1984, in particular patients reported between January 1, 1980 and December 31, 1984, with a diagnosis of bone and joint tuberculosis. The location of the focus, age, sex, and ethnic origin of the patients were recorded. The Danish population was fairly con-

stant during this period (median 5,119,155); the number of immigrants increased from 47,336 to 55,449 (Statistisk årbog 1980-1984, Danmarks Statistik).

Results

The annual incidence of new or reactivated pulmonary tuberculosis declined steadily from 1972 to 1984 while other types of tuberculosis, including bone and joint tuberculosis remained unchanged during this period (Figure 1).

There were 100 cases of bone and joint tuberculosis from 1980 to 1984, consisting of 49 males and 51 females. The mean annual incidence of bone and joint tuberculosis in Denmark during this period was 4 per million. Immigrants accounted for 18 per cent of the total number of cases, corresponding to a mean annual incidence of 72 per million in this subset of the population. The countries of origin and the numbers of affected immigrants were Pakistan 8, Vietnam 4, India 2, Turkey 2, Thailand 1, and Yugoslavia 1. The median age of the native group was 72 (2-96) years and 27 (3-60) years in the immigrant group (Figure 2). No difference in age distribution was observed between males and females.

Seventy per cent of the patients with involvement of bone and joints had no previous history of tuberculosis, and only 20 per cent of the patients with bone and joint tuberculosis had

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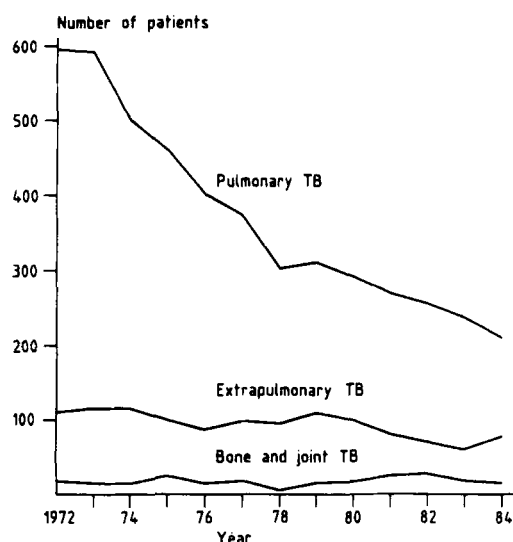


Figure 1. Number of new or reactivated cases of tuberculosis diagnosed in Denmark 1972-1984.

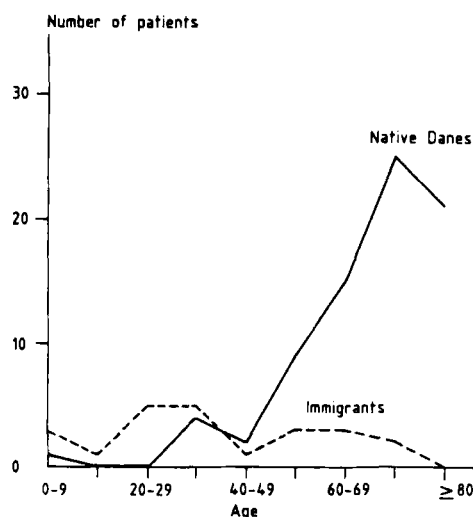


Figure 2. Age distribution of 100 patients in Denmark 1980-1984 with bone and joint tuberculosis according to ethnic origin.

active pulmonary disease at the time of diagnosis. Besides pulmonary involvement, an active second focus was found in 11 patients: urinary tract in 4, liver in 3, meninges in 2, and disseminated disease in 2.

Most parts of the skeleton were represented (Table 1). Twenty-six per cent of the patients had involvement of the spine; 21 per cent of the hip, knee, or femur; the rest showed an even distribution among the small bones and joints. The same skeletal distribution was seen in native Danes as in immigrants.

In 82 per cent a positive culture was obtained either from a bone or joint lesion or from another focus.

Table 1. The site of bone and joint tuberculosis in Denmark 1980-1984 according to ethnic origin

	Natives	Immigrants
Spine	22	4
Hip	19	2
Knee	7	0
Femur, tibia, fibula	4	1
Foot	3	4
Sternoclavicular joint	9	1
Shoulder	3	3
Elbow	6	2
Humerus, radius, ulna	7	0
Ribs	2	1
Total number of cases	82	18

Discussion

A central registration of tuberculosis in Denmark has been enforced by law since 1951. The simultaneous registration based on positive cultures gives the data in the present investigation a very high reliability.

The incidence of tuberculosis has shown a steady decline all over the world during recent decades (Grzybowski 1983). Paus (1977) demonstrated a similar decrease in bone and joint tuberculosis in Norway. However, his study primarily focused on the change in age distribution without considering the ethnic origin of the patients; a decrease in the incidence among the young was found. Our data, as well as recent reports from Great Britain (Newton et al. 1982, Sammon 1983), indicates that the decrease in bone and joint tuberculosis has leveled off.

Among native Danes, bone and joint tuberculosis was almost entirely found in the elderly; our data confirm that the disease has been virtually eradicated in children; we found no children with BCG osteitis. However, we call attention to a new risk group, i.e., young immigrants from areas with a high prevalence of tuberculosis (Newton et al. 1982, Davies et al. 1984, Enarson et al. 1979). Our data indicate that the incidence among immigrants is 18 times higher than among native

Danes. Reports from areas with a greater proportion of immigrants demonstrate an even higher rate (Newton et al. 1982, Davies et al. 1984). The changing pattern may be associated with the introduction of new strains of tuberculosis, some partially resistant to current tuberculostatics (Grzybowski 1983).

A low incidence of tuberculosis entails a risk of

delayed diagnosis. In patients with active pulmonary tuberculosis or a past history of tuberculosis, the tubercle bacillus must always be suspected as the causative agent in infectious bone and joint lesions. Our study calls for attention in this regard, particularly in patients from an immigrant population.

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Acknowledgements

We thank Jørgen Hindberg, M.D., for advice. The statistical material was kindly provided by Else Jarnved, Danish Institute of Clinical Epidemiology.