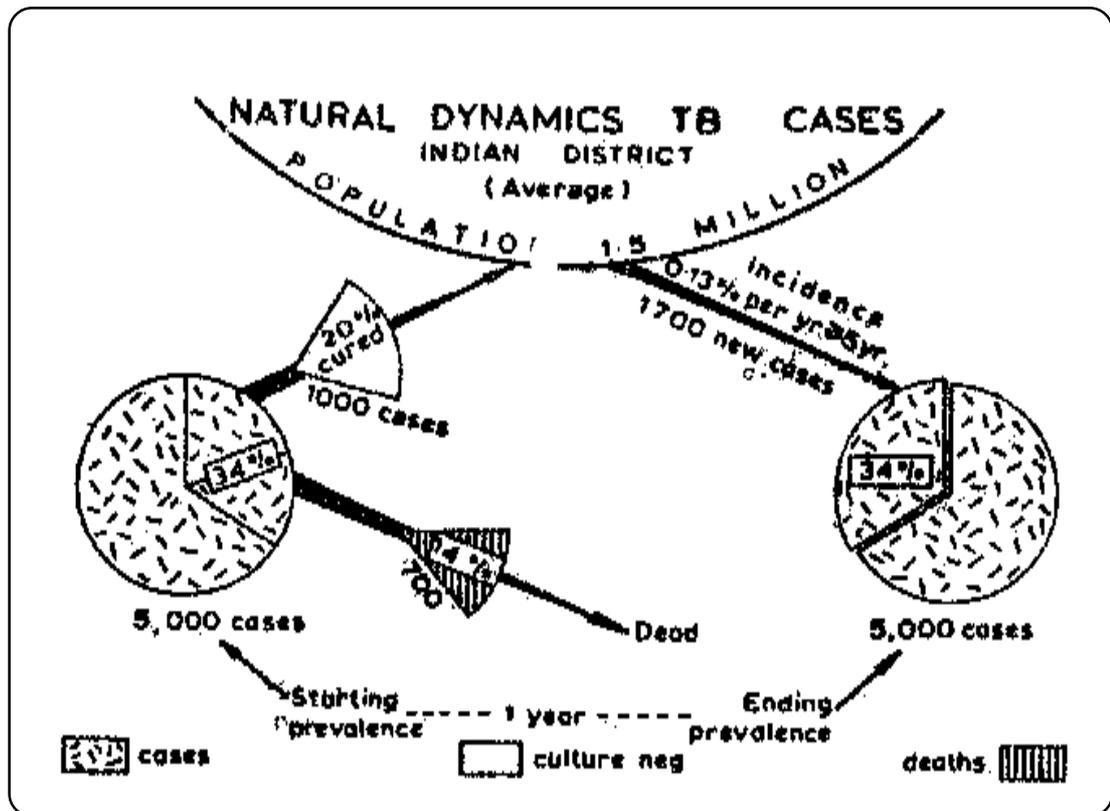


rounds) was seven times the rate for those already infected. Those with >20 mm reaction had higher annual incidence rate of disease. Out of the 126 cases followed up during the 5 years, 49.2% died, 32.5% got cured and 18.3% continued to remain sputum positive. The incidence cases showed a natural cure rate of 20% and a mortality of 14% over the immediate observation period of one and a half years. This showed a higher natural cure indicating

that TB cases were not a uniform entity. There could be gradations from the point of view of diagnosis and ability to benefit from treatment⁸³.

3.9. Outcome of longitudinal survey – natural history of TB

Longitudinal surveys are time and resource consuming without yielding the immediate results. It requires courage to assume this type of work. The foresight made



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the NTI to take up the challenging and repetitive work of the longitudinal survey. Not that repeat surveys had not been done earlier elsewhere. Dr Frimodt Moller had done it in south India⁸⁴ and the NDTC had done it in north India⁸⁵. But the planning and approaches of NTI were different in that it included in-depth repeat surveys which were conducted at fixed intervals. Thus the natural history of the disease, as prevalent in a rural community, could be studied methodically.

In November 1977, Dr Gothi delivered the Wander-TB Association of India Oration: *Natural History of TB*. In the Oration, he had incorporated many of these new aspects culled out carefully from the longitudinal survey. He found that about 5-8% of the total infected persons may develop primary or post primary disease. He also drew on the valuable contributions made by a host of experts both from India and abroad. These insights added a new dimension to the thinking and sharpened prognosticating abilities as well. He stated that the

epidemic of TB spans into centuries. The anti-TB measures specially drugs in particular, have not only changed the outlook for individual patient but by reducing infectivity period have speeded up the decline of TB in the community as seen in Japan and Eskimos in Canada⁸⁶. Twenty five years later, in 1992, Chakraborty and others⁸⁷ used the data to deliberate the *23 year trend* and suggested an average decline of 3.2% per annum, a trend probably representing the natural dynamics. These were eye openers because it is not easy to escape from the text book definitions or narratives of famous clinicians rich in experience and to gain afresh unbiased picture. These insights impelled the NTI to plan newer studies: Incidence of pulmonary TB and change in bacteriological status of cases at longer intervals of 12 years (1974); and at shorter intervals of three months (1978). The latter study revealed that *cases converted or reverted even at shorter intervals and this appeared to be going on continuously in the community*. Incidence of cases over a period of three months was 0.99 per thousand which was not very

different from the annual rate of 1.03 per thousand. However, incidence of cases, cure and death from among the existing as well as fresh cases kept on balancing each other so that the prevalence rate of cases studied at shorter intervals did not show variations⁸⁸.

In 1979, Gothi and others presented the findings of a repeat survey conducted in Tumkur in the same set of villages and towns and town blocks of the initial survey 12 years later⁸⁹. The first survey was conducted in 1960-61 when there was no organised anti-TB programme in the district. Since 1964 the area was under the cover of NTP. A DTP was organised in the entire district in 1964. One of the objectives of this repeat survey was to determine if there was any

change in the prevalence rates of infection and disease following the implementation of the DTP. The findings were: over a period of 12 years no appreciable change in the overall prevalence rates of tuberculous infection was observed in the same area. The fate of sputum positive cases diagnosed at first survey was : about two-third dead, one-fourth negative and 8.1% were positive for M.tb. It appears that surveys conducted at intervals of 10-15 years may reveal little change in the prevalence rates, as TB is in endemic phase or follows a slow downward trend. One could conclude that 12 years period is too short an interval for natural dynamics of disease and the DTP has not shown any dent on the problem⁸⁹.

In 1978, KS Aneja and AK Chakraborty wrote the observations of many experienced clinicians that "TB has undergone a considerable change in its clinical presentation, specially over the last quarter of the century. Many retrospective studies have clearly brought out the gradual change from a comparatively more acute and extensive disease among the young to a more chronic, less extensive disease among the elderly. There is also consensus that there is a marked decrease in the concomitant problems of pulmonary TB like enteritis, laryngitis, lymph adenitis with discharging sinuses, etc. It is significant that very similar changes were noticed in the countries where TB had definitely declined".

In 1982, Chakraborty and others published a report on the population of the longitudinal survey resurveyed 16 years later (1961-77). The population sample was restricted to 22 villages of Bangalore district. Even this repeat survey showed that the prevalence of cases did not differ significantly from survey to survey. The variation from first survey to fifth survey was 3.96 to 4.92 per thousand. However, there was a shift in the mean age and better survival rate of cases diagnosed at later surveys⁹⁰.

3.10. Sub studies

Subsidiary papers began to be published from 1965 onwards (Annexure IV). Several penetrating investigations and studies within studies were carried out concomitantly to seek answers to a variety of pressing questions. A few examples: *Enhancing of tuberculin allergy by previous tuberculin test (1966)*. *Resistant and sensitive strains of M.tb found in repeat surveys among south Indian rural population (1968)*. *Prevalence of non-specific sensitivity to tuberculin*

in a south Indian rural population (1976). *Estimation of the number of repeat examinations required to detect all TB cases in the community (1976)*. *Incidence of TB among newly infected population and in relation to the duration of infected status (1976)*. *Relapse among naturally cured cases of pulmonary TB (1976)*. *Use of 20TU RT23 and 5TU Battey antigen for estimation of prevalence of non-specific tuberculin sensitivity (1977)*. *Incidence of sputum positive TB in different epidemiological groups during five year follow up of a rural population in south India (1978)*. *A comparison of new cases (incidence cases) who had come from different epidemiological groups in a rural population (1978)....the list steadily grows.*

3.11. Accomplishments in knowledge dissemination

The steadily growing knowledge in TB control brought with it a type of pressure that urged the NTI to find newer paths to tread than lecturing, teaching, training, conducting seminars and writing papers because every path had its own objective oriented limitations. The NTI had ambitious plans to