SHORT REPORT

Outcome of hospital-based TB in the Goldfields area

R Nhiwatiwa, C Sepitla

As the HIV/AIDS epidemic explodes, an increasing proportion of the workload of diagnosis and treatment of tuberculosis (TB) is shifting from primary care level to hospitals at secondary and tertiary levels of care.

The nature of hospitalised TB patients has changed significantly, with patients now more ill and with multiple problems often related to co-infection with HIV. Diagnosis of TB in AIDS patients is problematic and compounded by a multiplicity of clinical problems. This has introduced new challenges to secondary and tertiary care hospitals.

TB patients take up a large proportion (approximately 40%) of medical beds at the Goldfields Regional Hospital in the Free State. The role of secondary hospitals in TB management is to diagnose, treat acute problems and to transfer to the primary care level for further treatment. The transfer system involves completion of the patient transfer form (GW20/14) and discharge of patients from hospital with a 7-day supply of anti-tuberculosis treatment. Patients are instructed to report to their local clinic for follow-up treatment within 7 days of discharge.

The success of a transfer system is dependent on effective communication between secondary and primary care institutes and a high level of case holding.

The objective of this study was to evaluate the efficiency of this transfer system from Goldfields Regional Hospital to the community health services.

Goldfields Regional Hospital is a 460-bed secondary care level referral institute in Welkom. It serves the goldmining region, which includes Odendaalsrus, Allanridge, Virginia, Theunissen, Thabong, Ventersburg, Bultfontein, Wesselsbron and Hoopstad.

The referral catchment area comprises over 20 clinics and 4 district hospitals. The adult TB workload is handled by the Department of Internal Medicine (90 beds) and the local National Health Service (NHS) laboratory.

Objectives

Objectives were: (*i*) to examine and document the performance of the Goldfields Regional TB transfer system, with specific reference to hospitalised cases; (*ii*) to assess the level of case holding and compliance; (*iii*) to accurately document the TB workload at secondary health care institutes in Goldfields; and (*iv*) to draw up a set of recommendations for management.

Goldfields Regional Hospital, Welkom, Free State
R Nhiwatiwa, MB ChB, DTM&H, FCP (SA)
C Sepitla, BNursSc

Methods

Design. This was a prospective study based on information from the Goldfields Regional Hospital TB database and the primary health care institutions in the Goldfields area.
Subjects. Subjects included newly diagnosed patients with all forms of active TB admitted to the Goldfields Regional Hospital over the duration of the study period.
Data. The study data were collected in two phases, phase one being the admission period at the Goldfields Regional Hospital and phase two the follow-up at the primary care clinics.

Phase one hospitalisation information included age, sex, TB episode number, HIV status, type of TB (according to the *International Classification of Disease 10* (*ICD 10*)), and area of residence, which was classified to reflect the number of people per room, i.e. high-density suburb of Thabong or low-density areas of Welkom. The type of housing was classified into house, hostel or informal settlement.

Following discharge and transfer from the hospital, the hospital research officers then followed up each case at the clinic of reference, where phase two data were obtained.

Phase two follow-up data included tracing and noting whether or not the TB patients reported to the referral clinic and noting the time period they reported to the clinic within 2 months of follow-up.

An analysis of the hospital-based and clinic-based data was combined to give an indication of: (*i*) the proportion of hospital patients successfully transferred to primary care level for continuation of treatment; (*ii*) the proportion of hospital patients lost during the transfer process; and (*iii*) the proportion of patients who defaulted TB treatment in the early stages (default rate).

Results

The Goldfields area has a total population of 752 076 and an adult population (i.e. above 18 years) of 497 820.

For the period October 2001 - June 2002, 2 777 cases of pulmonary TB (PTB) were registered in the district TB register.

For the period October 2001 - May 2002 the first 200 TB cases admitted to Goldfields Regional Hospital were entered into the study and followed up over the period of study.

The age distribution was 21 - 40 years (62%), and 41 - 60 years (31%), with very few patients above 50 years of age (Fig. 1).

The male/female ratio was 1:1.

Most patients were from the high-density suburbs, with 145 (73%) from the suburb of Thabong. There were 24 patients (12%) from Welkom, a town with low-density suburbs. Other areas contributed 17 patients (15%).

Forty-five per cent of patients lived in informal settlements, 54% lived in formal houses and1% were from hostels.

Respiratory TB, bacteriologically or histologically confirmed (*ICD 10* A15) comprised the majority of cases (*N* = 128, 64%), with respiratory TB not confirmed bacteriologically or histologically (*ICD 10* A16) accounting for 24 cases (12%). There were 4 patients (2%) with TB of the nervous system (*ICD 10* A17). Thirty-eight patients (19%) had TB of other organs (bones, joints, genito-urinary, lymphadenopathy, skin, eye, ear, adrenal glands and pericardium) (*ICD 10* A18) and there were 6 patients (3%) with miliary TB (*ICD 10* A19).

There were 158 patients (79%) with newly diagnosed TB and 42 (21%) re-treatment cases.

All cases were notified in the hospital (100% notification).

Information on HIV status was scanty and no meaningful figures were obtained. Routine testing was not done.

Outcome of TB cases

- Four patients (2%) died in hospital.
- One hundred and eighty-six cases were discharged and referred to primary care clinics.
- Only 83 cases of the 186 reported to the primary care clinics for further treatment.
- Approximately 45% of the transferred cases reported to the referral clinics within the study period.
- One hundred and three discharged patients failed to report to the primary care clinics.
- Approximately 55% of discharged patients failed to report to the clinics for ongoing TB treatment.

Discussion

The Goldfields area has one of the highest TB incidence rates in the country. This is probably explained by the high number of migrant mine workers and the high prevalence of HIV seropositivity (41.4% of antenatal cases).

With the downgrading of most mine health facilities in the region and the closure of South African National Tuberculosis Association (SANTA) TB centres (Allanridge Chest Hospital), more of the TB workload has been shifted to the provincial secondary care institutes, i.e. the Goldfields Regional Hospital in Welkom.

The success of TB control in these patients depends heavily on keeping transferred cases 'within the system' and subsequently maintaining high levels of compliance during the entire treatment course.

This prospective study shows that the current transfer process from secondary care level to primary care loses about 55% of cases. This high default rate inevitably leads to incomplete cure and the emergence of multidrug-resistant TB.

The study also shows that the majority of TB patients (62%) fall within the economically active 21 - 40-year age group. This parallels the known HIV prevalence rate, but this could not be demonstrated in the present study.

Seventy-three per cent of TB cases come from the area of town classified as high density, probably reflecting population distribution and also the relation between TB prevalence and poor socio-economic status.

Forty-five per cent of TB patients are from informal settlements, which creates major challenges to attempts to enforce public health measures to control the epidemic.

Some of the problems encountered include lack of a clear physical address; no 'streets'; nomadism; migration, particularly to Lesotho and Mozambique; congested living conditions; poor ventilation and lack of water supplies and sanitation.

Cases of PTB with positive direct smears (A15) represent the infectious group within any community.

The study showed that sputum direct smears for TB were positive in 64% of hospital cases. Ideally these cases must be diagnosed and managed at primary care level. Hospitalisation of such cases creates nosocomial risk to other patients and to health workers.

The majority of cases (79%) are 'new', which leads to shorter and more cost-effective therapy options in most cases.

All cases were notified within the hospital, which is a remarkable achievement.

Conclusion

This study clearly demonstrates that the existing TB transfer system from secondary to primary level is inefficient, inappropriate and results in the majority of hospital TB patients failing to continue treatment. The system has a very low case holding which is paramount to any TB control programme. A good proportion of the TB workload has shifted to secondary care hospitals and these institutes are not designed to handle the new challenge.

Recommendations

Regional hospitals must acknowledge and accept responsibility for effectively transferring TB patients to primary care level.

Hospital patient transport vehicles must courier discharged TB patients with directly observed therapy (DOTS) supporters directly to primary care clinics for continued care. Patients will then undergo the routine of registration at the local clinic before they are released home.

The involvement of DOTS supporters must start during hospitalisation, and continue during the transfer period and into the community.

Several advantages are envisaged with these proposals: (*i*) a 'rigid and water-tight' transfer system will ensure improved compliance and adherence; (*ii*) the DOTS supporter system will be enhanced; and (*iii*) the generation of a new channel of communication between regional/tertiary institutes and primary care established.