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The Era to Monitor Tuberculosis

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Abstract

Tuberculosis is ranking one of the top 10 causes of mortality worldwide in 2016. The global and Regional TB statistics is alarming us to work on the preventive measures to control and manage tb to eliminate TB globally. some of the measures like public awareness, Tb surveillance, notification by health workers, Tb financing, health insurance and social protection and DSM management can be undertaken to control TB.

Keywords: Tuberculosis; Mortality; Prevention.

Introduction

Tuberculosis (TB) has existed for millennia and remains a major global health problem. It causes ill-health in millions of people each year and in 2015 was one of the top 10 causes of death worldwide, ranking above HIV/AIDS as one of the leading causes of death from an infectious disease.

This is despite the fact that with a timely diagnosis and correct treatment, most people who develop TB disease can be cured. It is estimated that there were 1.4 million TB deaths in 2015, and an additional 0.4 million deaths resulting from TB disease among HIV-positive people. In terms of cases, the best estimates for 2015 are that there were 10.4 million new TB cases (including 1.2 million among HIV-positive people), of which 5.9 million were among men, 3.5 million among women and 1.0 million among children. Overall, 90% of cases were adults and 10% children, and the male:female ratio was 1.6:1.

From 2000 to 2015, global and national efforts to reduce the burden of tuberculosis (TB) disease were focused on achieving targets set within the context of the Millennium Development Goals (MDGs). Target 6c of MDG6 was to "halt and reverse" TB incidence [1].

Global TB Statistics

In 2015 an estimated 1.4 million people who were HIV negative died of TB. In addition there were 0.4 million deaths resulting from TB disease among people living with HIV. So there were a total of 1.8 million TB related deaths.

In 2012 more than 10 million children were orphaned as a result of their parents death from TB.There were also in 2015 an estimated 480,000 new cases of MDR-TB and an additional 100,000 people with rifampicin resistant TB (RR-TB). People with rifampicin resistant TB are eligible for the same treatment as people with MDR TB.

Regional TB Statistics

Globally it is thought that fewer than two-thirds (63%) of TB cases are notified. The WHO figures for the estimated incidence, prevalence and number of deaths from TB in each WHO region are given below.

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Table 1: Estimated WHO Regional TB statistics for 2015

Region	Population (in Million)	HIV negative TB Mortality	HIV positive TB Mortality	HIV Positive TB incidence	Total TB incidence
Africa	989	450,000	300,000	834,000	2,720,000
Americas	991	19,000	5,900	32,000	268,000
Eastern Mediterranean	648	80,000	3,000	13,000	749,000
Europe	910	32,000	4,900	27,000	323,000
South-East Asia	1,930	710,000	74,000	227,000	4,740,000
Western Pacific	1,860	89,000	5,700	34,000	1,590,000

TB Epidemic in India

Each year about 2.2 million people develop TB in India and an estimated 220,000 die from the disease.

People living with HIV accounted for 1.2 million (11%) of all new TB cases. Six countries accounted for 60% of the new cases: India, Indonesia, China, Nigeria, Pakistan and South Africa. Global progress depends on major advances in TB prevention and care in these countries. Worldwide, the rate of decline in TB incidence remained at only 1.5% from 2014 to 2015. This needs to accelerate to a 4–5% annual decline by 2020 to reach the first milestones of the End TB Strategy. In 2015, there were an estimated 480000 new cases of multidrug-resistant TB (MDR-TB) and an additional 100000 people with rifampicin-resistant TB (RR-TB) who were also newly eligible for MDR-TB treatment. Although the number of TB deaths fell by 22% between 2000 and 2015, TB remained one of the top 10 causes of death worldwide in 2015 [1].

TB treatment & care in India is provided by the government's Revised National TB Control Programme (RNTCP) as well as through private sector health providers. In 2015 the RNTCP covered a population of 1.28 billion .

TB Prevention Services

TB Surveillance

The ultimate goal of TB surveillance is to directly measure TB incidence from national case notifications in all countries. This requires a combination of strengthened Surveillance, better quantification of under-reporting (i.e. the number of newly diagnosed cases that are missed by surveillance systems) and universal access to health care (to minimize under-diagnosis of cases). A TB surveillance checklist developed by the WHO Global Task Force on TB Impact Measurement defines the standards that need to be met for notification data to provide a direct measure of TB incidence [3].

♦ *Notification by Health Care Workers*

The ratio of the TB notification rate among health-care workers to the TB notification rate in the general adult population is a good indicator of the impact of TB infection control in health facilities. In 2015, 9977 health-care workers were reported with TB from 67 countries; China accounted for 30% of these cases and South Africa for 21%. In 16 countries, the number of TB cases per 100 000 health-care workers was more than double the notification rate in the general adult population.

♦ *BCG Vaccination*

BCG vaccination should be provided as part of national childhood immunization programmes according to a country's TB epidemiology.

♦ *TB Treatment as TB prevention*

For TB prevention the World Health Organisation (WHO) recommends the drug isoniazid should be taken daily for at least six months and preferably nine months.

The main "target" groups for TB treatment for prevention, are those most at risk of progressing from latent to active TB. These include:

- Infants and children aged less than 4 years old;
- People infected within the previous two years;
- People infected with both TB and HIV;

♦ People who have certain clinical conditions, or conditions which compromise their immune system, such as people with diabetes, and people with chronic renal failure.

♦ *Active TB drug-safety monitoring and management*

DSM is the active and systematic, clinical and laboratory assessment of patients on treatment with new anti-TB drugs, novel MDR-TB regimens, or XDR-TB regimens, to detect, manage and report suspected or confirmed drug toxicities. The overall objectives of a DSM are to reduce risks from drug-related harms in patients on second-line treatment for drug-resistant TB and to generate standardized

data to inform future policy updates on the use of such medicines.

DSM Includes Three Essential Activities to Achieve These Objectives

- Patients targeted for a DSM should undergo active and systematic clinical and laboratory assessment during treatment to detect drug toxicity and adverse events (AEs). Proposed schedules have been developed for use in patients on shorter regimens or on new medications.
- All AEs detected should be managed in a timely manner, to deliver the best possible patient care.
- Standardized data should be systematically collected and reported for any detected serious adverse event (SAE) [4,5].

♦ *Universal Health Coverage & Social Protection*

Implications for TB In some high TB burden settings, emerging health financing schemes, including national health insurance, could lead to major reductions in out-of-pocket expenditures in low-income populations.

Social protection can be advanced through better models of care and social benefits. Many low- and middle-income countries have financed social and economic support for TB patients, but these support packages need to be better documented and evaluated. For overall impact and sustainability, using national social protection platforms is a priority [6].

♦ *TB Financing*

The BRICS countries (Brazil, the Russian Federation, India, China and South Africa), which collectively account for about 50% of the world's TB cases, rely mostly or exclusively (the exception is India) on domestic funding [7].

♦ *TB Education*

TB education is necessary for people with TB. People with TB need to know how to take their TB drugs properly. They also need to know how to make sure that they do not pass TB on to other people. But TB education is also necessary for the general public

♦ *Preventing TB transmission in households*

Actions to be taken

In order to reduce exposure in households where someone has infectious TB, the following actions should be taken whenever possible:

Houses should be adequately ventilated;

Anyone who coughs should be educated on cough etiquette and respiratory hygiene, and should follow such practice at all times;

♦ While smear positive, TB patients should:

- Spend as much time as possible outdoors;
- If possible, sleep alone in a separate, adequately ventilated room;
- Spend as little time as possible on public transport;
- Spend as little time as possible in places where large numbers of people gather together.

Cough etiquette and respiratory hygiene means covering your nose and mouth when coughing or sneezing. This can be done with a tissue, or if the person doesn't have a tissue they can cough or sneeze into their upper sleeve or elbow, but they should not cough or sneeze into their hands. The tissue should then be safely disposed of.

♦ *Households where someone has culture positive MDR TB*

In households with culture positive MDR TB patients, the following guidance should therefore be observed in addition to the measures given above.

- Culture positive MDR TB patients who cough should always practice cough etiquette (including use of masks) and respiratory hygiene when in contact with people. Ideally health service providers should wear respirators when attending patients with infectious MDR TB in enclosed spaces.
- Ideally, family members living with HIV, or family members with strong clinical evidence of HIV infection, should not provide care for patients with culture positive MDR TB;
- Children below five years of age should spend as little time as possible in the same living spaces as culture positive MDR TB patients [8].

♦ *TB Prevention in Health Care Facilities*

Doctors and other health care workers who provide care for patients with TB, must follow infection control procedures to ensure that TB infection is not passed from one person to another. Every country should have infection control guidance which clearly needs to take into account local facilities and resources, as well as the numbers of

people being provided with care. However, infection control guidance must not only be written but also implemented [9].

Conclusion

Despite , more efforts have been taken to end the global TB epidemic, with corresponding targets of a 90% reduction in TB deaths and an 80% reduction in the TB incidence rate by 2030, compared with 2015.Improved measurements through substantial investments in health information systems, TB surveillance will provide a firmer basis for monitoring progress towards the End TB Strategy targets and ultimate TB elimination.

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