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Status of RNTCP in a tuberculosis unit of West Bengal

The latest figures released by WHO show that the prevalence rate of tuberculosis (TB) (including that associated with HIV) for 2009 in India was 249 per 100 000 population.¹ Under the Revised National Tuberculosis Control Programme (RNTCP), the case detection rate for all forms of tuberculosis for 2009 was 67%. The success rate of treatment for new sputum-positive, new smear-negative/extrapulmonary and retreatment cases for 2008 was 87%, 89% and 74%, respectively.¹ There are wide variations in the performance parameters of the programme across India. We aimed to ascertain the present status of the RNTCP in a tuberculosis unit (TU) in Kalyani, a district located on the international border between India and Bangladesh. The TU of Kalyani covers a population of 4.23 lakh and has 5 designated microscopy centres (DMCs) attached to it.

An analysis of the quarterly RNTCP reports of new and retreatment cases in the TU and their treatment outcomes for the years 2008 and 2009 shows that in 2008, 365 new patients were registered under the RNTCP and put on DOTS. Of these, 59.5% ($n=217$), 20.8% ($n=76$) and 19.7% ($n=72$) were sputum-positive, sputum-negative and extrapulmonary cases, respectively. The total number of new cases registered in 2009 decreased to 285. There were more sputum-positive (64.2%), less sputum-negative (19.6%) and extrapulmonary (16.1%) cases compared with the previous year. The favourable outcome of treatment for all categories of new cases decreased in 2009 compared with 2008. Eighty-nine patients were enrolled as retreatment cases in 2008 under the categories of smear-positive relapse (33, 37.1%), smear-positive failure (14, 15.7%), smear-positive treatment after default (27, 30.3%), and others (15, 16.9%). The number of retreatment cases increased to 106 in 2009 and included 40 (37.7%) cases of smear-positive relapse, 16 (15.1%) of smear-positive failure, 31 (29.2%) of smear-positive treatment after default, and 19 (17.9%) other cases. The favourable outcome of all retreatment cases decreased in 2009 to 44.3% from 46.1% in the previous year. This worrying trend revealed by the analysis was despite the fall in the default rate among retreatment cases from 24.7% in 2008 to 17.9% in 2009. The drug failure rate increased from 12.4% in 2008 to 18.9% in 2009.

The success rate of treatment of new sputum-positive cases in 2008 and 2009 at the Kalyani TU was below the target of 85%; and decreased from 84.4% in 2008 to 82% in 2009. Our study shows a high drug failure rate. It has been shown that low levels of drug resistance are likely to be due to a TB control programme that is performing well.² New research needs to be carried out and technologies developed to decrease the treatment default and failure rate for new and retreatment cases of tuberculosis.^{3,4}

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Cruetzfeldt–Jakob disease following corneal transplantation

Cruetzfeldt–Jakob disease (CJD) is a degenerative disease of the central nervous system caused by infectious proteins called prions. Though the sporadic form is the most common prion disorder in humans, accounting for about 85% of all cases, iatrogenic CJD has been reported following corneal transplants, with implantation of contaminated electroencephalography (EEG) electrodes, following dura mater grafts and other surgical procedures, and human growth hormone and pituitary gonadotrophin therapy. Most patients with CJD present between 50 and 75 years of age.¹

A 45-year-old man underwent penetrating keratoplasty for perforated corneal ulcer. Two years later, he presented to the department of neurology with a history of rapidly progressive cognitive decline with behavioural symptoms, myoclonus and seizures of 4 months' duration. He did not have any fever, signs of raised intracranial tension, systemic illness or malignancy. The patient had been in a demented state and his level of communication with his family members had been minimal for nearly a month. There was no history of psychiatric disorder in the past, or consumption of lithium, neuroleptics or baclofen. The haemoglobin level, cell counts and biochemical investigations, such as blood glucose, and renal and liver function tests, were normal. The electroencephalogram (EEG) showed a background of poorly formed 4–5 Hz (30–50 microvolt) slow activity, which was bilaterally symmetrical. Small amplitude (40–60 microvolt), generalized sharp wave complexes were seen at a periodicity of almost 1 per second throughout the record. Responsiveness to auditory stimuli was observed in the form of an increase in background frequency to 5–7 Hz. A brain magnetic resonance imaging (MRI) showed bilateral hyperintensity in the thalamus and the caudate nucleus, with restriction in diffusion-weighted imaging (DWI). These findings, though not exclusive, were considered to be characteristic of CJD in view of the clinical presentation.^{2,3} A brain biopsy to establish donor–host transmission^{4,5}

could not be done as the patient's family refused consent. A retrospective review of the eye bank records showed that the donor had died in coma with a history of Alzheimer disease (AD).

On the basis of the patient's clinical presentation and investigations, a final diagnosis of CJD was made and he was discharged on oral valproate for myoclonus and seizures, after the disease course and the prognosis were explained to his relatives.

CJD and AD are close differentials. Considering the fact that the progressive dementia of CJD, in the absence of myoclonus or extrapyramidal and cerebellar involvement, could be mistaken for AD, it is plausible that the donor was suffering from CJD and was misdiagnosed as a case of AD. Though confirmatory evidence in the form of brain biopsy to document transmission is lacking, the younger age of onset of cognitive decline and a history of corneal transplantation in our patient leads to a possible hypothesis that the conditions were related. This case highlights the need for careful evaluation and the exclusion of CJD before transplantation of corneas from a donor with AD.

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Hypokalaemic paralysis: The thyroid connection

Thyrotoxic periodic paralysis (THPP) is a chanellopathy causing muscle disease. This condition is reported more frequently in men of Asian origin than in those in the western world.^{1,2} A high incidence of THPP (~2%) has been reported from Japan and China.^{3,4} Two Indian studies on hypokalaemic paralysis have noted that THPP was one of the causes.^{5,6} In one study, 5 of 30 patients had THPP.⁵ This is considered the most common reversible form of periodic paralysis, characterized by acute onset of severe hypokalaemia with progressive, symmetrical proximal muscle weakness in patients with thyrotoxicosis. We briefly describe the details of 10 patients with THPP who were brought to the department of emergency medicine of our hospital.

The patients with THPP were between 25 and 47 (mean 32.9) years of age. All presented in the night or early hours of the morning. There were 7 men and 3 women. Five of them had proximal lower limb weakness, 2 had weakness of all 4 limbs and 3 had complete weakness of both lower limbs. The progression of weakness ranged from 6 hours to 2 days. One patient had had intermittent lower limb

weakness for 6 weeks, and another for 6 months. Another patient had had a similar episode 2 months earlier. Deep tendon reflexes were sluggish in all patients and there was no evidence of sensory disturbance. On questioning, 5 men admitted that they had had a heavy meal the night before. The serum potassium levels ranged from 1.7 to 3.5 (mean 2.3) mEq/L. The thyroid function tests revealed a low thyroid stimulating hormone (TSH) and elevated thyroid hormones in 8, and subclinical hyperthyroidism in 2. Of the 10 patients, 6 had Graves disease (1 polyglandular syndrome), 1 had toxic adenoma, and 3 had thyroiditis. Five patients had goitres on examination, and history-taking revealed features of hyperthyroidism in 4. One of the patients had paroxysmal supraventricular tachycardia, while another was in atrial fibrillation. The weakness resolved with intravenous potassium supplementation, along with oral beta-blockers. The patients were treated appropriately (radio-iodine therapy for patients with Graves disease and toxic adenoma) following emergency therapy. The problem recurred in 5 patients as they stopped taking beta-blockers. Beta-blockers were continued till euthyroidism was achieved and the paralysis did not recur. The patients were followed up for at least 1 year, though one patient with thyroiditis was lost to follow up.

THPP was first reported by Rosenfeld in the German medical literature in 1902.⁷ Excess thyroid hormones of any aetiology may precipitate it, though Graves disease is the most commonly encountered underlying diagnosis.^{1,2} It is usually young men between 20 and 40 years of age who suffer from THPP. Unlike familial hypokalaemic periodic paralysis, this condition is sporadic, though there is often a history of hyperthyroidism in the family. Most of our patients came in the morning hours, supporting the initial description of THPP as a nocturnal or night palsy.⁸

Thyroid hormone potentiates hypokalaemia through various mechanisms.¹ The increased responsiveness to beta adrenergic stimulation drives potassium into the cells through $\text{Na}^+\text{K}^+-\text{ATPase}$ channel and this effect is potentiated by thyroid hormones. In addition, insulin release in response to heavy meals rich in carbohydrates also increases intracellular shift of potassium. A similar action has been proposed for testosterone; hence the higher prevalence in men. It is postulated that patients with THPP have ion channel defect and mutations have been observed in Southeast Asia.⁹

Limb involvement is usually more than trunk involvement, and the attacks frequently occur following strenuous exercise or a heavy meal. The attacks often consist of muscle weakness, mostly proximal (sometimes recurrent), and may rarely involve the respiratory, bulbar and neck muscles.^{1,2} A goitre, sinus tachycardia or other features of thyrotoxicosis/hyperthyroidism may be helpful in making a diagnosis. Inclusion of thyroid function tests in the initial investigations helps to make an early diagnosis of THPP. The immediate therapy involves replacement of potassium chloride through the oral (2 g 4 hourly) or intravenous (10 mEq hourly) route. The required dose varies. Over-replacement can sometimes result in rebound hyperkalaemia. Close monitoring of potassium, along with continuous cardiac monitoring, is mandatory in the management of THPP.¹ In the acute phase, high dose oral beta-blockers (up to 3-4 mg/kg), which block beta adrenergic stimulation and thereby the $\text{Na}^+\text{K}^+-\text{ATPase}$ activity, have been recommended.^{1,2,10} Intravenous beta-blockers have also been reported to be useful.¹ Beta-blockers (up to 160 mg/day) need to be given till the thyroid status returns to normal, when the attacks will cease. Specific therapy for hyperthyroidism should be instituted. Till euthyroidism is achieved, patients should be advised to avoid strenuous exercise and heavy meals rich in carbohydrates. We hope to increase awareness of this condition among physicians, as awareness is pivotal in aptly diagnosing and managing this fully treatable endocrine emergency.

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Idiopathic environmental intolerance (electromagnetic hypersensitivity syndrome)

A 26-year-old bank employee, who had a history of benzodiazepine dependence 5 years earlier, presented to us with the complaint of gradually progressive difficulty in using mobile phones over the past 9 months. He had started avoiding the devices for the past 7 months. He had been using a mobile phone for the past 5 years. Around 9 months back, he had noticed that he would get a throbbing headache of abrupt onset, and experience a sense of heaviness and a vague feeling in his head while typing a short message on his mobile phone. These symptoms would abate soon after he stopped typing. Later, he started developing these symptoms whenever he used his mobile phone. Subsequently, other symptoms, such as a ringing sensation in the ear, a vague discomfort in the neck, ear pain and occasional palpitations, developed. Following this, he became lethargic and was unable to concentrate on his work for about 24 hours. At times, these symptoms were partially relieved by sleep. After some time, he started having similar symptoms even when a mobile phone rang near him. As a result, he began avoiding all phones and other electromagnetic gadgets, such as DVD players and home theatre systems. He had no difficulty with television or radio, or when a mobile phone rang on television.

Examination and routine laboratory investigations did not reveal any abnormality. The mental status examination did not reveal any active psychopathology, except for preoccupation with his symptoms.

A diagnosis of anxiety disorder not otherwise specified (NOS) was made and tablet escitalopram (10 mg daily) prescribed. He stopped taking the medicine 2 days later due to agitation. A revised

diagnosis of electromagnetic hypersensitivity syndrome (EHS) was made as the patient's symptoms rated high on the EHS questionnaire.¹ Psychotherapy sessions, zinc, selenium and vitamin B complex gave the patient minimal symptomatic relief. He was subsequently lost to follow up.

The debate on the health-related side-effects of using mobile phones continues.² EHS refers to a cluster of non-specific somatic and psychological symptoms purportedly caused by exposure to electromagnetic fields (EMFs).³ The diagnostic criteria for EHS are not clearly defined. It is a poorly understood condition and its assumed rate of prevalence is about 3%.⁴ The causal relationship between EMF and EHS is not established.⁵ Hence, WHO has recommended replacing the term 'EHS' (as it implies a causal relationship) with idiopathic environmental intolerance (IEI), which does not carry any implications of chemical aetiology, immunological sensitivity or EMF susceptibility.⁶ Our patient is possibly the first reported case of this entity from India. Various treatments, such as antioxidants, vitamins and cognitive behavioural therapy, have been used, but with limited success.⁷

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Awareness of HIV/AIDS among teenage students in a high prevalence district in India

Teenagers constitute almost 20% of India's population.¹ It is important to impart education on HIV/AIDS and monitor the teenagers' awareness of HIV/AIDS at an early age, before they engage in high risk sexual behaviour. Alarming gaps have frequently been reported in the knowledge of young adults relating to the HIV/AIDS epidemic.^{2,3} Studies by the National AIDS Control Organization (NACO) and other organizations have revealed that the percentage of women getting infected with HIV/AIDS is increasing at an alarming rate.^{3,4}

and that women are less knowledgeable about HIV/AIDS than are men.⁵⁻⁷

We assessed the knowledge, attitudes and perceptions relating to HIV/AIDS among teenage high school students of a high prevalence district of India.^{8,9} The students ($n=108$) were selected randomly from 5 high schools of Guntur, had a low to middle-socioeconomic status and were 14–17 years of age. Overall knowledge was estimated and gender differences were analysed using the Chi-square test for independence. The important results obtained are described below.

HIV awareness

More than half (61.1%) of the students were not aware that treatment for HIV is available. Nearly half (45.4%) had the misconception that people living with HIV/AIDS (PLHA) do not look healthy and 17.6% felt that HIV/AIDS is a punishment from God.

Modes of transmission

One-quarter (25.9%) of the students were not aware that HIV can be transmitted through breast feeding. About two-thirds (66.6%) did not know that HIV can be transmitted by tattooing. The students had the misconception that mosquitoes (19.4%), sneezing, coughing and spitting (14.8%), using the same toilet (12%), sharing clothes (11.1%), sharing food utensils/food (8.3%), living in the same house (7.4%) and using the same swimming pools (4.6%) can transmit HIV.

Girls (77.5%) were less aware that HIV can be transmitted through sexual intercourse than boys (93.2%; $p=0.019$). More girls had the misconceptions that mosquitoes ($p=0.0003$), sneezing, coughing and spitting ($p=0.0099$), using the same toilet ($p=0.0003$), sharing clothes ($p=0.0051$), sharing utensils/food ($p=0.0414$), swimming pools ($p=0.0120$) and living in the same house can transmit HIV.

Attitudes

More than one-third of the students felt that they would discontinue the friendship if their friend contracted HIV (41.6%) and that the names of PLHA should be disclosed publicly (34.3%). One-fourth (25%) said that they could not share clothes or meals with a PLHA and that such people should be quarantined (29.6%). One-fifth (20.4%) said that PLHA have no right to study or work.

More girls (42.6%) were of the opinion that PLHA should be quarantined than were boys (18.6%; $p=0.006$), and said that they could not share clothes with PLHA (36.7%; $p=0.0103$).

Prevention

About one-third (31%) of the students were not aware that disposable syringes can help prevent transmission of HIV. More girls than boys lacked awareness of preventive measures, such as condoms ($p=0.0008$), safe blood transfusion practices ($p=0.0114$) and disposable syringes ($p=0.0037$).

Sources of information

The major sources were television (45.4%), school (35.2%), print media (22.2%), friends (12.9%) and radio (7.4%).

Our study shows that there are major lacunae in the knowledge of teenage students about HIV/AIDS. This scenario needs to be improved through strategic school education programmes¹⁰⁻¹² directed towards the specific lacunae noted in the knowledge and perceptions of the students. Special emphasis should be placed on imparting HIV education to girls.

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Preliminary evaluation of the ASHA scheme in Naraingarh block, Haryana

The National Rural Health Mission (NRHM) envisages the main role of the Accredited Social Health Activist (ASHA) in helping the female health worker (HWF) organize immunization sessions, encouraging women to have medical check-ups, counsel them about their nutrition, and escort them to the hospital/‘delivery hut’ for delivery. ASHAs receive an itemized payment for the activities done by them.¹ We evaluated the functioning of ASHAs in Naraingarh block and ascertained the opinion of the community about this new cadre of health workers.

A team of resident doctors posted at the Rural Health Training Centre (RHTC), Naraingarh of the School of Public Health, Post Graduate Institute of Medical Education and Research, Chandigarh did the study from August to December 2007. Seven villages in the RHTC field practice area and 25 from a non-field practice area were purposively selected.

There were 34 posts of ASHAs in 32 villages. We interviewed 25 ASHAs from 23 villages, 25 anganwadi workers from 25 villages, 5 HWF and 8 *dais*. Fifteen ASHAs were housewives, 4 were ex-Sanjeevani² workers, 3 temporary/part time anganwadi workers, and 1 each was a temporary school teacher, tailor and Supplement Nutrition programme worker. In the remaining villages (2 in the field practice area and 7 in the non-field practice area), ASHAs could not be interviewed because they were on leave (3), out of station (2), had resigned (3) or the posts were not filled (3). The ASHAs were 19–38

years of age with a parity of 0–4 and literacy ranging from class VIII to graduation. In 3 villages, ASHAs had joined work but quit because (i) the monetary incentive was too little, (ii) there were difficulties in doing house-to-house survey because of caste issues within the community, and (iii) the husband objected to house-to-house visits.

Thirteen ASHAs received induction training. No on-the-job training or periodic re-training was done. Nineteen ASHAs said that transportation for pregnant women was arranged by the family, 3 ASHAs arranged it (through the *sarpanch*, HWF or by taxi) and the rest had not encountered the situation. Apart from health-related activities, no other tasks were done by the ASHAs. The *sarpanches* were not aware of the scheme and no village health and sanitation committee (VHSC) was functioning in the study villages. The VHSC figured only during opening of the joint bank account of the ASHA and *sarpanch*. ASHAs too were not aware of the procedure to form a VHSC.

The monetary compensation received by the ASHAs ranged from ₹100 to ₹5000 (mean ₹193). Only 2 ASHAs felt that the amount they received was satisfactory, 2 ASHAs had not received any money till the time of the study, and the rest felt it was too low for the work they did. The payment was done by the HWF once a month on the basis of the work report submitted by the ASHA.

The supply of medical kits for ASHA was irregular in all the villages. Three ASHAs had not received any such kits. No stock registers were maintained. Ten ASHAs had not treated any minor illness since their recruitment while 15 had. They had also distributed condoms, iron-folic acid (IFA) and oral contraceptive pills.

Untied funds under the VHSC amounting to ₹10 000 were received by 5 ASHAs, but none had been used, as no guidelines had been received from the Chief Medical Officer. Other ASHAs were yet to receive the funds. All 25 ASHAs had opened joint accounts with the *sarpanch*.

ASHAs said that their major problems were irregular payments, difficulty in undertaking house-to-house visits and some people asking unnecessary questions during the house-to-house work. They said that HWFs did not provide timely information for any health-related activity in the village. They also said that they did not have any money for transport of poor pregnant mothers to the hospital.

Some ASHAs said that if they registered 3 pregnant women in a month, the HWF would pay for only 2. One HWF allegedly told the ASHA that 'if all work is shown to be done by the ASHA, then what will be our role'. The HWFs felt that ASHAs were of no help to them and only duplicated the HWF's work.

We did one focus group discussion in each of the 7 villages about the role and functioning of ASHAs as well as with *dais*. None of the mothers who delivered ($n=12$) were aware about the name ASHA. They were able to understand whom we were referring to when we either indicated the ASHAs family or by saying 'the woman who came for your home visits, antenatal registration, immunization, birth/death registration other than the HWF, anganwadi worker or *dai*'.

Many *sarpanches* of the villages did not know who the ASHA was, or what her job was. Some said that ASHAs work for immunization, care of pregnant women and child care. They felt that the scheme was a good initiative by the government. *Dais* were aware of the changes in the healthcare system and felt helpless, annoyed and wronged. One of them suggested that they should be compensated for each institutional delivery. They earned their livelihood by taking

pregnant women who consulted them to usually private institutions, which gave them incentives for bringing patients to them.

In rural areas, *dais* have remained the main providers of maternity care.³ Under the NRHM, a *dai* is not recognized as a skilled birth attendant. Much effort is being made to promote institutional deliveries such as the 'delivery hut' scheme.⁴ Facilities for blood transfusion, caesarean section and other maternal healthcare needs are also being created.¹ After introduction of the ASHA scheme, the group dynamics of village-level workers seems to have changed. The ASHA is dependent on the anganwadi worker and the HWF for information related to her routine activities.

None of the ASHAs interviewed received on-the-job training. A similar problem of incomplete training was found in the evaluation of the village health guide scheme in Belgaum, Karnataka.⁵

The system and quantum of reimbursement was a source of discontentment among ASHAs, who compared themselves with other workers in the village who get a fixed monthly honorarium such as the anganwadi worker. The other problem faced by ASHAs was difficulty in undertaking house-to-house visits because it is considered culturally inappropriate for a woman to move around in the village.

Dais played an important role in improving maternal health at village level in the past.⁶ Experience from Satara, Maharashtra revealed that a training programme of the *dais* led to improved institutional delivery and other health indicators.⁷ In one study in rural North India, 50% of women still preferred that their deliveries be conducted by *dais*.⁸ Therefore, the system of *dais* should not be abolished in one go as it takes time for the people to change their behaviour.

The ASHA scheme in the initial phases has many operational problems and the sustainability of these workers is also unclear.

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