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An investigation of attitudes, beliefs and behaviour of leprosy patients, family members and PHC workers towards multidrug therapy in Yangzhou and Dongtai Districts of China

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Summary To improve the operational efficiency of multidrug therapy (MDT) implementation in rural areas, an investigation into the attitudes, beliefs and behaviour of leprosy patients and their family members as well as primary health care (PHC) workers towards MDT was carried out in Yangzhou and Dongtai Districts of China. A sample of 370 leprosy patients, 594 family members and 730 PHC workers was interviewed or investigated individually using questionnaires. The results showed that: 1, the presently used MDT is acceptable to a wide range of patients although a small number of patients have various problems in their treatment; 2, the patients' habit in daily drug administration, their awareness of the risk of default and confidence in MDT have a positive influence in increasing drug compliance; and 3, the supervision and encouragement of family members to patients' treatment which is associated with their knowledge on MDT is also beneficial to patients' drug compliance. However, only half of the PHC workers had a basic knowledge of MDT and a desire to participate in MDT implementation, a finding which clearly calls for urgent attention and improvement. In order to ensure the effective implementation of MDT, there is a need to educate leprosy patients and their family members as well as PHC workers to establish the patients' correct awareness of MDT, obtain the family support and motivate the PHC workers.

Introduction

The introduction of multidrug therapy (MDT) recommended by WHO has been a major advance in the treatment of leprosy because of its relatively short treatment course and a low rate of relapse.[1–4] Since MDT was implemented in Jiangsu Province in 1984, almost all the

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newly-detected leprosy cases have been treated with these regimens on a domiciliary basis. In order to ensure the effectiveness of presently used MDT, it is important to have an insight into the social aspects associated with its operational implementation. In this paper, the results of a sociomedical investigation on MDT implementation among the leprosy patients and their family members, and primary health care (PHC) workers are reported.

Materials and methods

Yangzhou and Dongtai Districts are situated in the North of Jiangsu Province of China with a total of 21,534 accumulated cases of leprosy since 1949 and 1551 cases treated with 'loose' drugs of WHO–MDT (MB–MDT 1229 and PB–MDT 322) since 1984 were selected for the investigation. In these areas, the WHO regimens were usually delivered to patients' homes at monthly intervals by the designated leprosy field workers of the County Station for Skin Disease Control with monthly supervised intake of rifampicin 600 mg, clofazimine 300 mg, together with daily, unsupervised clofazimine 50 mg and dapsone 100 mg for MB patients; monthly supervised rifampicin 600 mg and daily, unsupervised dapsone 100 mg for PB patients. Some patients, however, collected their drugs and were supervised at skin clinics, and a small number of patients liked to be treated in secret and/or without supervision in order to avoid the social stigma from community to their families. A sample of 370 leprosy patients and 596 of their family members were selected randomly from these areas and interviewed individually using the questionnaires. The interview was conducted by the authors with the assistance of the leprosy field workers who were experienced in dealing with leprosy patients and their family members. Before the interview, the aims and purpose of the investigation were clearly explained to the interviewees. Also, a sample of 730 PHC workers, including 137 part-time leprosy workers (PLWs), 61 paramedical workers (PMWs), 76 township health workers (THWs), 343 village health workers (VHWs) and 113 managerial health workers (MHWs), were investigated using the questionnaires in the same areas.

Drug compliance was defined as taking more than 90% of the prescribed medications estimated through the intensive interview.

All data from the questionnaires were put into the computer to establish a database, and analysed using the computer software of EpiInf 5.0.

Results

There were 370 (279 male and 91 female) leprosy patients with an average age of 49·6 ± 12·9 years, including 257 cases (69·5%) on MB–MDT and 113 (30·5%) on PB–MDT, and 594 members with an average age of 43·0 ± 6·4 years from these patients' families who responded to the questionnaires.

Leprosy patients were questioned about their treatment behaviour and beliefs in an attempt to determine whether their behaviour and beliefs were associated with their drug compliance (Table 1). The daily drug administration at a fixed time, patients' awareness of the risk of drug default and their confidence in MDT had a statistically significant affect in increasing patients' drug compliance. However, whether treated in the usual way with monthly attendance and supervision, or secretly, the drug compliance rate was the same. When questioned on the biggest problem in their treatment, 24·3% of patients had problems

Table 1. Relationship between patients' treatment modes/beliefs to MDT and their drug compliance

Patients treatment modes/beliefs to MDT	Drug compliance		Total	χ^2-test
	Yes	No		
Being supervised				
Yes	256 (74·9)	86 (25·1)	342 (100·0)	0·19
No	22 (78·6)	6 (21·4)	28 (100·0)	NS*
Drug delivery				
Home delivery	136 (74·7)	46 (26·3)	182 (100·0)	3·24
Clinic collection	84 (71·2)	34 (28·8)	118 (100·0)	NS
Hospitalization	58 (82·9)	12 (17·1)	70 (100·0)	
Daily administration				
Fixed time	253 (78·1)	71 (21·9)	324 (100·0)	12·15
Indefinite time	25 (54·3)	21 (45·7)	46 (100·0)	HS
Secret treatment				
Yes	105 (77·2)	31 (22·8)	136 (100·0)	0·49
No	173 (73·9)	61 (26·1)	234 (100·0)	NS
Risk of drug default				
Awareness	246 (76·9)	74 (23·1)	320 (100·0)	3·84
Unawareness	32 (64·0)	18 (36·0)	50 (100·0)	SS
Confidence in MDT				
Yes	221 (78·6)	60 (21·4)	281 (100·0)	7·71
No	57 (64·0)	32 (36·0)	89 (100·0)	HS
Total	278 (75·1)	92 (24·9)	370 (100·0)	—

Numbers in parentheses are percentages. *NS: $p > 0{\cdot}05$; SS: $p < 0{\cdot}05$; HS: $p < 0{\cdot}01$.

and more MB–MDT patients (30·4%) had problems than PB–MDT patients (10·7%) ($\chi^2 = 16{\cdot}6$, $p < 0{\cdot}001$). Of 78 MB–MDT patients with problems, for about 50% had the biggest problem was skin discoloration due to clofazimine and for 25% the biggest problem was the length of treatment. However, the vast majority of both MB–MDT (99·6%) and PB–MDT (98·2%) patients could accept or tolerate the present regimen-duration of MDT (Table 2). Among the noncompliant patients, the common reasons contributing to the patients' noncompliance in these areas were their farming activities (70%) and frequent movement from place to place (10%).

As shown in Tables 3 and 4, only 20·2% of family members had a basic knowledge of MDT. Of those who had the knowledge, 60·8% supervised and encouraged their family patient's treatment at home, whereas 42·4% who did not have any knowledge of MDT did so ($\chi^2 = 13{\cdot}1$, $p < 0{\cdot}001$). On the other hand, the supervision and encouragement of family members, mainly from their parents and spouses, significantly increased drug compliance.

Out of 730 PHC workers, 41·0% had a basic knowledge of MDT, 41·0% had an involvement in MDT implementation before and 52·9% had a desire to participate in it in future. As shown in Table 5, VHWs were a group in which fewer workers had knowledge about MDT but more had a desire to participate in MDT implementation in future, as compared with the others except PLWs.

Discussion

It is clear that the introduction of multidrug therapy (MDT) recommended by WHO has

Table 2. Attitudes towards the biggest problem in MDT treatment and the acceptability of the present MDT course

Patients' attitudes	MDT Regimens		Total
	MDT–MB	MDT–PB	
The biggest problem			
No problem	179 (69·6)*	101 (89·4)	280 (75·7)
Long MDT course	21 (8·2)	4 (3·5)	25 (6·8)
Discoloration	38 (14·8)	0 (0·0)	38 (10·3)
Other side-effects	12 (4·7)	2 (1·8)	14 (3·7)
Others	7 (2·7)	6 (5·3)	13 (3·5)
	$\chi^2 = 26{\cdot}5,\ p < 0{\cdot}01$		
Present MDT course			
Acceptable	256 (99·6)	111 (98·2)	367 (99·2)
Unacceptable	1 (0·4)	2 (1·8)	3 (0·8)
	$\chi^2 = 1{\cdot}9,\ p > 0{\cdot}05$		
Total	257 (100·0)	113 (100·0)	370 (100·0)

* Numbers in parentheses are percentages.

offered an important opportunity to attain the global elimination of leprosy as a public health problem by the year 2000. However, for the effective implementation of MDT, it is not only the 'therapeutic factors', but also the 'patient factors' and 'service factors' which require consideration.[5] Moreover, the patient factors are often given priority for consideration.[6] This

Table 3. Family members' knowledge of MDT, different family relation and their behaviour to patients' treatment

	Supervising/encouraging patients' treatment		Total
	Yes	No	
MDT knowledge			
Yes	73 (60·8)*	47 (39·2)	120 (100·0)
No	201 (42·4)	273 (57·6)	474 (100·0)
	$\chi^2 = 13{\cdot}1,\ p < 0{\cdot}001$		
Family relation			
Parents	48 (60·0)	32 (40·0)	80 (100·0)
Spouses	130 (60·5)	85 (39·5)	215 (100·0)
Children	58 (34·3)	111 (65·7)	169 (100·0)
Siblings	38 (29·2)	92 (70·8)	130 (100·0)
	$\chi^2 = 48{\cdot}4,\ p < 0{\cdot}001$		
Total	274 (46·1)	320 (53·9)	594 (100·0)

* Numbers in parentheses are percentages.

Table 4. Family members' behaviour to patients' treatment and patients' drug compliance

	Drug compliance		
	Yes	No	Total
Supervising/encouraging patients' treatment			
Yes	239 (87·2)*	35 (12·8)	274 (100·0)
No	245 (76·6)	75 (23·4)	320 (100·0)
	$\chi^2 = 11{\cdot}6, \quad p < 0{\cdot}001$		
Total	484 (81·5)	110 (18·5)	594 (100·0)

* Numbers in parentheses are percentages.

investigation is designed to evaluate the attitudes, beliefs and behaviour of patients and their family members as well as medical workers towards MDT.

Although some patients collected their drugs and were supervised at skin clinics, and even a small number of patients were treated secretly and/or without supervision in order to avoid the social stigma from community to their families, their drug compliance fortunately was not decreased. The patients' drug administration at a fixed time, awareness of the risk of drug default and confidence in MDT had a significant affect on enhancing their drug compliance (Table 1).

As confirmed by this investigation, a very high proportion of MB patients agreed to take MDT in spite of the main problem of skin discoloration due to clofazimine (a constituent of MDT), and the MDT regimen-duration was acceptable to a vast majority of patients, since the benefits of MDT have been very well appreciated.[2] However, patients' behaviour in response to treatment is not only determined by their subjective desire, but influenced by some objective social and environmental factors such as agricultural activities and population migration.[6] As found in this study, 80% of the noncompliant patients believed that their noncompliance was due mainly to their farming activities and/or frequent movement from place to place. It is our experience that some patients in rural areas believe that their

Table 5. Attitudes, beliefs and behaviour of PHC workers towards MDT

Personnel	Number	Knowledge on MDT	Involvement in MDT	Desire to participate
PLWs	137	67 (48·9)*	81 (59·1)	81 (59·1)
PMWs	61	27 (44·3)	24 (39·3)	28 (45·9)
THWs	76	34 (44·7)	13 (17·1)	26 (34·2)
VHWs	343	121 (35·3)	150 (43·7)	199 (58·0)
MHWs	113	50 (44·2)	31 (27·4)	52 (46·0)
χ^2 test	—	$p > 0{\cdot}05$	$p < 0{\cdot}01$	$p < 0{\cdot}01$
Total	730	299 (41·0)	299 (41·0)	386 (52·9)

* Numbers in parentheses are percentages.

agricultural activities, especially the farming activities is more important than their regular MDT treatment.

Family has played an important role in leprosy control. Family members' knowledge about MDT and their relation to the patient within family determine their behaviour towards patient's treatment. Family members who have knowledge of MDT and a closer relation to patients tended to give more supervision and encourage the patients' treatment, which could significantly increase the patients' drug compliance.

The concept of the integration of leprosy case into general health care has been proven worthy to be recommended, based on the consideration that it will lead to much more efficient use of staff, transportation and financial resources.[8,9] At present, the leprosy control project in the investigated areas is mainly run as a semivertical control programme and is in a process of transition towards integration into primary health care. However, from the results of this investigation it must be pointed out that amongst the 730 PHC workers only 41·0% had a basic knowledge about MDT, 41·0% had been involved in MDT work before and only 52·9% had a desire to participate in MDT implementation in future, which meant that in terms of PHC workers the improvement of their knowledge and the motivation of their involvement in MDT should be a prerequisite for the integration of leprosy care.[3] Interestingly, amongst the PHC workers, VHWs were a group which had less knowledge about MDT but more desired to participate in MDT implementation, suggesting that VHWs may be the easier access to PHC workers for the integration.

Conclusion

The conclusion drawn from this investigation is that in order to ensure the effective implementation of MDT and its successful integration into primary health care, the greater emphasis must be given to health education. In addition, the supervision of MDT in farming activities, and the management of MDT must be strengthened. The revelation in this study that only half the PHC workers interviewed had a basic knowledge of MDT and a desire to participate in MDT implementation clearly calls for urgent attention.

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