Original Article

ASSESSMENT OF DIRECT OBSERVE TREATMENT SHORT COURSE (DOTS) IMPLEMENTATION AND TREATMENT CARD UPDATE BY DOT PROVIDERS UNDER REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME IN RAIPUR DISTRICT OF CHHATTISGARH STATE

Dhiraj Bhawnani[1], Nirmal Verma[2], Gopal P Soni[2], Anjana Tiwari[1]

Financial Support: None declared
Conflict of interest: None declared

How to cite this article:
Bhawnani D, Verma N, Soni GP, Tiwari A. Assessment of Direct Observe Treatment Short Course (DOTS) Implementation and Treatment Card Update By Dot Providers Under Revised National Tuberculosis Control Programme in Raipur District of Chhattisgarh State. Natl J Community Med 2014; 5(2):195-198.

Author's Affiliation:
[1]Assist. Prof, Dept. of Community Medicine, CM Medical College, Durg (C.G.); [2]Associate Prof, Dept. of Community Medicine, Pt. JNM, Medical College, Raipur (C.G.)

Correspondence:
Dr Dhiraj Bhawnani,
Email: dhiraj.bhawnani@gmail.com

Date of Submission: 31-01-14
Date of Acceptance: 16-05-14
Date of Publication: 30-6-14

ABSTRACT

Background: DOTS is the backbone of RNTCP and its proper implementation is the key of success of programme, in which DOT providers play a crucial role. Chhattisgarh is unexplored area related to research in national health programme like RNTCP which need due priority, hence district level health system research relevant to TB is reason to select current research study. So the present study was conducted to assess the DOTS implementation and treatment card update by DOT providers underRevised National Tuberculosis Control Programmein Raipur district of Chhattisgarh state.

Methodology: A cross sectional observational community based study was conducted usingsimple random sampling in all 33 Designated Microscopic Centres (DMC's) of Raipur district from November 2011 to October 2012. During the study, 136 DOT providers were included and predesigned and pretested proforma was used as a study tool. The obtained data were analyzed using appropriate statistical test.

Results: Majority of DOT providers were between 30-40 year and 83.8% were female. Majority (63.4%) were mitanin (ASHA). The modular training was received by only 9.6% of DOT providers and rest were spot trained. Proper implementation of DOTS was seen in 13.2% DOT centres & Treatment cards update was found in 9.5% only.

Conclusion: Proper DOTS implementation and treatment card update was very low, so there is urgently need to ensure the same.

Key words: DOT providers, RNTCP, Treatment card, Raipur.

INTRODUCTION

Tuberculosis (TB) is one of the most ancient disease and continues to be a major public health problem of world even today.(1) In 2009 the worldwide prevalence of TB was 164 cases per 100,000 population, Incidence of TB 140 cases per 100,000 population, mortality due to TB was 19 cases per 100,000 population.(2) In 2009 in India Prevalence of TB was 249 cases per 100,000 population, Incidence of TB 168 was cases per 100,000 population, mortality due to TB was 23 per 100,000 population.(4) Every year approximately 1.8 million people develop TB and nearly 400,000 die from it. (3)Tuberculosis is a barrier to socio-economic development. (1)

RNTCP was started in Chhattisgarh in selected districts in 15/08/2002 and extended to entire state by 15/08/2004. DOTS is the backbone of RNTCP and its proper implementation is the key to success of programme. The DOT providers are link person between TB Health Visitor/Health worker and patients. Their performance determines the outcome of TB cases. Their role crucial in completing the treatment course and increasing the cure rate of the TB cases which in turn reduces mortality due to TB and development of multi drug resistance cases. There is need to assess the proper implementation of programme at operational level and the grass root level realities of TB treatment. With this background, the present study was conducted to assess the DOTS implementation and treatment card update by DOT providers in Raipur district.

METHODOLOGY

Study Centre–Department of Community Medicine, Pt J.N.M. Medical College, Raipur (C.G.), India. **Study**

Area:-Raipur district (all 33 Designated Microscopic Centres). **Study Design:-**Cross sectional observational community based study. **Sampling technique**:- Simple random sampling. **Study subjects**-136 (10% of DOT providers from each DMC). **Study Duration**- 1 year (Nov-2011 to Oct-2012). **Study Tool**- Predesigned and Pretested Proforma. **Consent-** Prior written Permission was taken from office concern & Informed consent from subjects.

Study was conducted in old Raipur district which currently has been divided into three districts. As per National guidelines of RNTCP list of Tuberculosis units (TUs) and Designated microscopic centres (DMCs) was obtained from District Tuberculosis Centre, Raipur (C.G.).Ethical considerations were met through institutional ethical committee.

Map of Study area (Raipur district) showing TUs & DMCs was prepared. The list of DOT providers was also obtained. Out of these DOT providers 10% from each DMC were randomly selected for study. Predesigned and pretested proforma was used for the Survey.

The TUs & DMCs were visited first. DOT providers were located with the help of TBHV/MPW. Home visits of DOT providers were made. They were assured of confidentiality then information was collected. Thus total 136 DOT providers were interviewed. Observation was made for supervised drugs administration by counting of used blister packs of TB drugs & matchingthe same with duration of treatment, proper entries of these in the treatment cards and timely update of treatment card. Assessment of proper DOTS implementationand treatment card update were done by making check point grading of 1, 0(1 for presence & 0 for absence). Collected data was checked for its completeness and correctness. Data was compiled in MS excel &analyzed with the help of medcalc online statistical calculator and Chi square test were applied to test the statistical significance and p value of < 0.05 was considered statistically significant for interpretation of finding.

Tool to assess the proper DOTS implementation

During the intensive phase (IP) of treatment, each and every dose of medicine is to be taken under direct observation of the DOT Provider. So there should be 24 and 36 blister packs in IP pouch of Cat I and II Patient wise box (PWB) respectively at any time during treatment. [3] If blister pack is missing by count , that means DOTS is not properly implementing.

During the Continuation Phase (CP), the first dose of the week must be administered under direct observation. The patient collects rest of the drugs for the week from the DOT Provider and consumes them at home. The following week, the patient comes with the empty blister pack, hands it over to the DOT Provider, takes the first dose under direct observation and collects drugs for the rest of the week to be consumed at home. So there should be 17 and 21 blister packs in CP pouch of Cat I and II PWB respectively at any time during treatment. [3] The DOT Provider must collect the empty blister pack and keep it in the PWB. If blister pack is missing by count, that means DOTS is not properly implementing.

RESULTS

Majority of the DOT providers were female and 50% were aged between 30-40 years. 26.5% of DOT providers got their schooling till higher secondary level while 25.7% had their education up to middle school. Majority were mitanin (Accredited Social Health Activist {ASHA}). The modular training was received by only 9.6% of DOT providers and rest were spot trained.The Refresher training had received by only 2.2% of DOT providers. (Table-1)

Table-1: Demographic Profile

Variable	DOT providers (%)
Age	
20-30 yr.	38 (27.9)
30-40 yr.	68 (50.0)
40-50 yr.	28 (20.6)
50-60 yr.	2 (1.5)
Sex	
Male	22 (16.2)
Female	114 (83.8)
Education	
Primary	15 (11.0)
Middle	34 (25.0)
High school	31 (22.8)
Higher secondary	36 (26.5)
Graduate	12 (8.8)
Post graduate	8 (5.9)
Occupation	
Private practitioner	7 (5.1)
Anganwadi worker	25 (18.4)
Mitanin	87 (64.0)
Quack	9 (6.6)
Others	8 (5.9)
Training Status	
Modular training	13 (9.6)
Spot training	123 (90.4)
Trained (Refresher training)	3 (2.2)
Untrained (Refresher training)	133 (97.8)

The proper implementation of DOTS was found in 13.2% ofDOT centres in the present study.Proper implementation of DOTS was significantly better among modular trained DOT providers (OR {Odds ratio} = 5.29). DOTS implementation by males was significantly better than females (OR=8.08). DOTS implementation by private practitioner was significantly better than others (OR=81). DOTS implementation by DOT providers in urban area was significantly better than rural area (OR=5.21). Proper implementation of DOTS was significantly better with the frequency of supervisory visits.(Table-2)

Treatment card were available at 90.44% centres while it was updated only in 9.5% of those centres. Higher percentage (30.8%) of modular trained DOT providers updated their treatment card (OR=5.63). Treatment card updatation by private practitioner was signifi-

cantly better (OR=12.3). Treatment card update by DOT providers in urban area was significantly better than rural area (OR=2.72). Treatment card update by DOT providers was significantly better with the frequency of supervisory visits. (Table- 3)

Table-2: DOTS implementation

Variable	DOTS Implementation	Odds Ratio	Confidence Interval
Training status*			
Modular	5(38.5%)	5.29	1.50-18.58
Spot	13(10.57%)	1	-
Age			
20-30 yr.	6(15.8%)	1.63	0.51-5.27
30-40 yr.	7(10.3%)	1	-
40-50 yr.	4(14.3%)	1.45	0.39-5.41
50-60 yr.	1(50%)	8.71	0.49-155.25
Sex			
Male	9(40.9%)	8.08	2.72-23.99
Female	9(7.9%)	1	-
Occupation			
Private practitioner	6(85.7%)	81	8.34-786.91
Anganwadi worker	3(12%)	1.84	0.42-7.96
Mitanin	6(6.9%)	1	-
Quack	1(11.1%)	1.69	0.18-15.82
Other	2(25%)	4.5	0.74-27.29
Area(Urban/Rural)			
Raipur urban	9(32.1%)	5.21	1.83-14.83
Raipur rural	9(8.3%)	1	-
Supervisory visit			
Within 15 days	3(3.4%)	1	-
Whithin 15-30 days	13(35.1%)	15.35	4.04-58.30
Visit >30 days	2(18.1%)	6.3	0.93-42.80

*** = χ^2 =5.722, d.f.=1, p=0.000009**

Table 3: Treatment card Update

Variable	Treatment card update	Odds Ratio	Confidence Interval
Training status*			
Modular	4(30.8%)	5.63	1.45-21.92
Spot	9(7.3%)	1	-
Age			
20-30 yr.	6(15.8%)	2.36	0.67-8.33
30-40 yr.	5(7.4%)	1	-
40-50 yr.	1(3.6%)	0.47	0.05-4.19
50-60 yr.	1(50%)	12.6	-
Sex			
Male	5(22.7%)	3.9	1.14-13.32
Female	8(7.0%)	1	-
Occupation			
Private practitioner	3(42.9%)	12.3	2.14-70.65
Anganwadi worker	3(12%)	2.24	0.50-10.09
Mitanin	5(5.7%)	1	-
Quack	0(0%)	0	-
Other	2(25%)	5.47	0.87-34.33
Area(Urban/Rural)			
Raipur urban	5(17.9%)	2.72	0.81-9.07
Raipur rural	8(7.4%)	1	-
Supervisory visit			
within 15 days	2(2.3%)	1	-
Within 15-30 days	9(24.3%)	13.8	2.82-67.81
visit>30 days	2(18.2%)	9.56	1.20-76.24

***= χ^2=5.013, d.f.=1, p=0.0003**

DISCUSSION

Similar studies have been done with following results. As per the study by Sagare S. M., Bogam R. R., Murarkar S. K. et al. (2012)[4] , 60.47% ASHAs were in age group of 19-30 years while Srivastava DK, Mishra A, Mishra S et al.(2009) [5] found that 53.33% of ASHAs were in the age group of20-29 years. Anandhi C. L., Nagaraj V. K., Kumar R. (2000)[6]observed that 40% non-allopathic indigenous medical practitioners were over 40 years of age. Jain M et al [7] found that 38.2% of DOT providers in <30yrage group.

In the present study majority of the DOT providers were females, which is similar to finding reported by Jain M et al.[7]Anandhi C. L., Nagaraj V. K., Kumar R. (2000)[6] observed that majority (96%) of them were males. In Baseline and midterm study by RNTCP [8,9], majority were Males 51%and52% respectively.

According to Anandhi C. L., Nagaraj V. K., Kumar R. (2000)[6] , 42%did not have any formal qualification in any system of medicine, 38% were qualified with less than a graduate degree in ayurveda, and 20% had a graduate degree in ayurvedic medicine. Jain M et al [7] observed that 45.1% of DOT providers were educated up to $\geq$ 12th level. Study by Sagare S. M., BogamR. R., Murarkar S. K. et al. (2012)[4] says all ASHAs were literate and completed education up to primary level. More than three fourth of ASHAs (79.07%) had education from 8th class to post graduate level.

Majority were mitanin (ASHA) in the present study. Health related occupation were doing by 76.5% of DOT providersas reported studied by Jain M et al. [7] Among Public and private doctors, majority were Public Doctors (52.2%) in midterm study by RNTCP [3] whereas Majority Private doctors (54.5%) in baseline study by RNTCP.[2]

In the present study, proper implementation of DOTS was found in only 13.2% DOT centres. Similar studies on DOTS have been done previously. Jain M et al [7] found that 82.4% of DOT providers asked for two sputumexamination in suspected case of pulmonary TB & 57.8 %of DOT providers referred then to specialist at TB hospital. Sagare S. M., BogamR. R., Murarkar S. K. et al.(2012)[4]found that 58.14% of ASHA working as DOT provider,93.02% ASHAS knew DOT provides in their area, 80% of them were helping DOT providers and 12.5% were not. Attitude & practice of only 36.3% of DOT providers was very good. Few studies have focused on health care provider factors which affect the non adherence to treatment.[10,11]Providers' inadequate skills, and their not following treatment guidelines, also affected quality of service.[11]

CONCLUSION

According to observation of the study DOTS implementation and treatment card update was very low and need to ensure the same for the success of RNTCP.

RECOMMENDATION

Treatment card was not available in many places so availability of treatment card should be ensured everywhere.

DOTS component is the back-bone of RNTCP programme. There is urgent need to ensure the supervised dose administration and also ensure the proper and timely update of treatment card at DOT provider level as well as DMC level.

There should be some process/ a plate form at DMC level to solve the problems faced by DOT providers in field situation with active involvement of Medical Officer, Senior Treatment Supervisor.

The DOTS implementation and treatment card update can be improved by increasing coverage of modular training with training modules as well as refresher training (frequency and its duration).Study material should be provided during training session. Refresher training should be conducted at regular interval.

There should be strict supervision by TBHV and MPW which in turn can be addressed by strict supportive supervision by Senior Treatment Supervisor

ACKNOWLEDGMENT

We are thankful to Officers, Staffand Health workers under RNTCP of Raipur District (C.G.) for their continued guidance during the study.

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