Assess the Knowledge on Tuberculosis Treatment Regimen and Follow-Up Care Among Primary Care giver's of Patient with Pulmonary Tuberculosis

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Abstract

Background: Tuberculosis is an infectious disease that primarily affects the lung parenchyma. It also may be transmitted to other parts of the body, including the meninges, kidney, bone and lymph nodes. Tuberculosis is one of the top 10 causes for death and leading cause of single infectious agent worldwide. India has managed to scale up basic TB services in the public health system. More than 10 million TB patients were getting treatment under Revised National Tuberculosis Control Programme (RNTCP). *Objective:* to assess the level of knowledge on Pulmonary TB treatment regimen and follow up care among Primary Caregivers' of patients with Pulmonary Tuberculosis and to find out the association between Primary Caregivers' knowledge on Pulmonary TB treatment regimen and follow up care with selected demographic variables. *Methodology:* the research approach used for this study was quantitative research approach and the design selected was descriptive survey research design, 150 subjects were selected using simple random sampling technique the data was collected using structured questionnaire. Result revealed that with respect to general information, 73 (48.67%) had moderately adequate knowledge, 72 (48%) had adequate. With regard to treatment regiment, 124 (82.67%) had inadequate knowledge, Considering the frequency, 76 (50.67%) had moderate adequate knowledge, Regarding the follow–up care, 90 (60%) had moderate adequate knowledge. The overall level of knowledge revealed that 86 (57.33%) had moderately adequate knowledge, 57 (38%) had adequate knowledge and only 7 (4.67%) had inadequate knowledge. The result revealed that the demographic variables association with educational qualification, type of family, and duration of time statistically significant at the level of $p < 0.001$. and family history of TB statistically significant at the level of $p < 0.01$. *Conclusion:* Caregivers' to mandatorily have adequate knowledge regarding tuberculosis treatment regimen and follow up care to provide complete care to facilitate patient's adherence to drug regimen and there by prevent spreading tuberculosis to achieve the goal "End TB".

Keywords: Tuberculosis; Primary Caregivers.

Introduction

Tuberculosis is an infectious disease that primarily affects the lung parenchyma. The Primary infectious agent, Mycobacterium Tuberculosis, is an acid-fast aerobic rod that grows slowly and is sensitive to heat and ultraviolet light. Mycobacterium bovis and Mycobacterium avium have rarely been associated with the development of a TB infection.[1]

Tuberculosis is one of the top 10 causes for death and leading cause of single infectious agent worldwide. Every year one million people continue to fall sick with Tuberculosis. In 2017, 1.3 million deaths were among HIV -ve people with an additionally 300000 deaths among HIV +ve people. In 2017 globally 10.0 million people had developed Tuberculosis disease including 5.8 million men, 3.2 million women and 1.0 million children.

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People are affected by TB in all countries and at all age groups, but overall 90% were adults (aged ≥ 15 years), 9% were people living with HIV (72% in Africa) and two thirds were in eight countries: India (27%), China (9%), Indonesia (8%), the Philippines (6%), Pakistan (5%), Nigeria (4%), Bangladesh (4%) and South Africa (3%). These and 22 other countries in WHO's list of 30 high TB burden countries accounted for 87% of the world's cases.[3]

As per the Global TB report 2017 the appraised incidence of TB in India was nearly 28,00,000 accounting for about a one fourth of world's TB cases. In 2017 India re-estimated its national figures of the burden of Tuberculosis including information from a wider range of sources. The ethics for TB care in India explains the TB treatment in India should be provided for all people with TB. This includes people in special groups, such as TB and HIV co-infection.[5]

India has managed to scale up basic TB services in the public health system. More than 10 million TB patients were getting treatment under Revised National Tuberculosis Control Programme (RNTCP), The rate of regression is too slow to meet 2030 sustainable development goals and 2035 end TB targets. Maintenance of prior efforts have generated inadequate regression, and will not rush the process towards ending TB. New broadly deployed interference is required to accelerate the rate of regression of incidence of TB many folds to more than 10–15% yearly. The desires for moving towards TB removal have been united into the four strategic pillars of Direct, Treat, Prevent, Build.[4]

New patients in India receive an internationally accepted first line treatment regimen for all new patient. The intensive phase consists of eight weeks of drugs Isoniazid (H), Rifampicin (R), Pyrazinamide (Z) and Ethambutol (E). The continuation phase consists of three drugs Isoniazid, Rifampicin and Ethambutol given for additional sixteen weeks. This is written as 2HREZ/4 – 6HRE. There is no necessity for any extension of continuation phase. The drug dosage is calculated according to patient's body weight.[5]

One fourth of the world's population is infected with TB. In 2016, 10.4 million people around the world became sick with TB disease. There were 1.7 million TB-related deaths worldwide. India accounts for about a quarter of the global TB burden. India is the country with the highest burden of both TB and MDR TB in the world. There are an estimated number of 79,000 multi-drug resistant TB patients among the notified cases of Pulmonary TB each year. India is also the country with the second highest number (after South Africa) of estimated HIV associated cases. In 2016 an estimated number of 28 lakh cases occurred and 4.5 lakh people died due to TB. India also has more than a million "missing" cases every year that are not notified and most remain either undiagnosed or unaccountably and inadequately diagnosed and treated in the private sector. In Puducherry Cure rate was 69% in 2004 when RNTCP was implemented. Cure rate improved year by year and it was 86% in 2013. To achieve 100% cure rate in Puducherry educating the Caregivers is more important. The Caregiver should monitor the patient's adherence to his or her medication regimen and should keep a schedule of the treatment. The Caregiver should ensure that the patient practice safe hygiene and consumes a nutritious diet. For this the Caregiver should have adequate knowledge regarding Pulmonary Tuberculosis and treatment regimen and follow up care. By September 2016 more than 43% of children were diagnosed with TB. The father, mother and children form the nuclear family and adults in the family assume the responsibility of caring for the younger members. Some members of the family take care of those who are incapable of caring for themselves because they suffer from TB and other diseases.[5]

A fixed dose combination (FDC)was given when two or more drugs are combined together in a single tablet. Fixed dose combination has following drugs such as

- Four drugs combination [isoniazid + rifampicin + pyrazinamide + ethambutol]
- Three drugs [isoniazid + rifampicin + ethambutol]
- Two drugs [isoniazid + rifampicin].

In daily drug regimen, TB patients were given fixed dose combinations (FDCs) of three or four drugs in specific dosages in a single pill based on the patient weight. The daily drug regimen reduced pill burden, as in-spite of giving of seven tablets, patients need to consume only 2 or 3 tablets, according to their weight band.[2,5]

The daily drug regimen was first started in Puducherry UT in October 2017 by the Health Minister Malladi Krishna Rao. Each patient will gather through the RNTCP and they will be provided a drug for one month. The drugs will be taken by the patient by DOTS strategies. The daily regimen will have to be followed by patients for six to eight months. Each patient with TB in India is receiving Rs. 500 per month for food. This is because under nutrition is a risk factor for TB in India.[8]

Objectives of the Study

- To assess the level of knowledge on Pulmonary TB treatment regimen and follow up care among Primary Caregivers' of patients with Pulmonary Tuberculosis.

- To find out the association between Primary Caregivers' knowledge on Pulmonary TB treatment regimen and follow up care with selected demographic variables.

Materials and Methods

Quantitative research approach and non-experimental descriptive survey research design was used for this study. The study was conducted in a selected area at Puducherry. Primary Caregivers of patient with Pulmonary Tuberculosis in selected areas at Puducherry region who fulfilled the inclusion criteria and were available during data collection period. The sample size comprised of 150 primary caregivers. Simple random sampling technique was adopted to collect the data. The subjects included were Primary Caregivers of both genders, who were willing to participate, who can understand English or Tamil and Primary care giver who were health care professionals, a post TB survivor, the caregivers of extra Pulmonary TB, caregivers of XDR/MDR TB were excluded. The data were collected using structured questionnaire prepared by the researcher. The data were collected after obtaining permission from concerned authority. Informed consent was obtained from the primary caregivers prior to data collection.

Results

Revealed that with respect to general information, 73 (48.67%) had moderately adequate knowledge, 72 (48%) had adequate. With regard to treatment regiment, 124 (82.67%) had inadequate knowledge, Considering the frequency, 76 (50.67%) had moderate adequate knowledge, Regarding the follow–up care, 90 (60%) had moderate adequate knowledge. The overall level of knowledge revealed that 86 (57.33%) had moderately adequate knowledge, 57 (38%) had adequate knowledge and only 7 (4.67%) had inadequate knowledge. The result revealed that the demographic variables association with educational qualification, type of family, and duration of time statistically significant at the level of $p < 0.001$. and family history of TB statistically significant at the level of $p < 0.01$

Fig. 1 depicts that with respect to general information, 73 (48.67%) had moderately adequate knowledge, 72 (48%) had adequate knowledge and only 5 (3.33%) had inadequate knowledge about Pulmonary Tuberculosis.

Among 150 subjects 124 (82.67%) of them had inadequate knowledge on treatment regimen, 25 (16.67%) had moderately adequate knowledge and only one (0.67%) had adequate knowledge on Tuberculosis treatment regimen.

Among 150 subjects 76 (50.67%) of them had moderate adequate knowledge on frequency of medication intake, 45 (30%) had adequate knowledge and 29 (19.33%) had inadequate knowledge on frequency of TB medication intake.

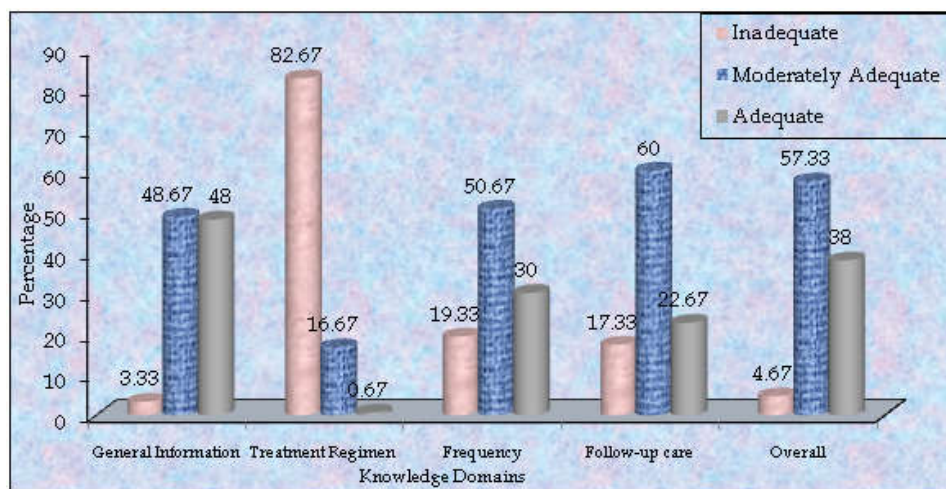Among 150 subjects 90 (60%) of them had moderate adequate knowledge on follow up care of

Fig. 1: Percentage distribution of level of knowledge on treatment regimen and follow up care among primary caregivers of patients with pulmonary tuberculosis.

Table 1: Association of Level of Knowledge on Treatment Regimen and Follow up care among Primary Caregivers' of Patient with Pulmonary Tuberculosis with Selected Demographic Variable such as (Education Qualification, Type of Family, Family History of TB, Duration of Stay)   N = 150

Demographic Variables	Inadequate (≤50%)		Moderately Adequate (51 – 75%)		Adequate (>75%)		Chi-Square Value
	No.	%	No.	%	No.	%	
Educational qualification							$\chi 2 = 23.588$
Degree	1	0.7	14	9.3	29	19.3	$p = 0.0001$
10+2	2	1.3	46	30.7	19	12.7	S***
1st std - 9th std	4	2.7	26	17.3	9	6.0	
Type of family							$\chi 2 = 21.362$
Nuclear family	3	2.0	56	37.3	34	22.7	$p = 0.0001$
Joint family	3	2.0	30	20.0	23	15.3	S***
Extended family	1	0.7	0	0	0	0	
Family history of TB							$\chi 2 = 9.220$
Yes	0	0	36	24.0	13	8.7	$p = 0.01$
No	7	4.7	50	33.3	44	29.3	S**
Duration of stay							$\chi 2 = 24.092$
From birth	2	1.3	38	25.3	18	12.0	$p = 0.001$
For past 2 years	2	1.3	4	2.7	2	1.3	S***
For past 5 years	0	0	8	5.3	20	13.3	
More than 10 years	3	2.0	36	24.0	17	11.3	

TB patients, 34 (22.67%) had adequate knowledge and 26 (17.33%) had inadequate knowledge on follow up care of TB patients.

Among 150 subjects the overall level of knowledge revealed that 86 (57.33%) of themhad moderately adequate knowledge, 57 (38%) had adequate knowledge and only 7 (4.67%) had inadequate knowledge on Tuberculosis treatment regimen and follow up care.

This the study reveals that a greater number of Caregivers' have inadequate knowledge in treatment regimen. However, it is a relief that majority (60%) of the Caregivers' have moderately adequate knowledge about follow up care.

The Table 1 reveals that the demographic variables educational qualification, type of family and duration of stay had shown statistically significant association with level of knowledge on treatment regimen and follow up care among Primary Caregivers' of patient with Pulmonary Tuberculosis with chi-square value of $\chi^2 = 23.588$, $\chi^2 = 21.362$, and $\chi^2 = 24.092$, at $p < 0.001$ level. The demographic variable previously any family history of TB had shown statistically significant association with level of knowledge level on treatment regimen and follow up care among Primary Caregivers' of patient with Pulmonary Tuberculosis with chi-square value of $\chi^2 = 9.220$, at $p < 0.01$ level.

Discussion

The result revealed that with respect to general information, 73 (48.67%) subjects had moderately adequate knowledge, 72 (48%) subjects had adequate knowledge and only 5 (3.33%) subjects had inadequate knowledge on Pulmonary Tuberculosis.

With regard to treatment regiment, 124 (82.67%) subjects had inadequate knowledge, 25 (16.67%) subjects had moderately adequate knowledge and only one (0.67%) subjects had adequate knowledge.

Considering the frequency, 76 (50.67%) subjects had moderate adequate knowledge, 45 (30%) subjects had adequate knowledge and 29 (19.33%) subjects had inadequate knowledge.

Regarding the follow – up care, 90 (60%) subjects had moderate adequate knowledge, 34 (22.67%) subjects had adequate knowledge and 26 (17.33%) subjects had inadequate knowledge.

The overall level of knowledge revealed that 86 (57.33%) subjects had moderately adequate knowledge, 57 (38%) subjects had adequate knowledge and only 7 (4.67%) subjects had inadequate knowledge.

The present study was supported by the study conducted by Yagnavalkyajani, GD Bhambhani *et*

al. (2016) on knowledge and awareness of TB in Caregivers' of paediatric TB patient. 68 (45%) of them had knowledge regarding mode of spread, 89 (58.9%) of them had knowledge regarding curability and 104 (68.9%) of them had knowledge regarding DOTS.[7]

The result revealed that the demographic variables educational qualification, type of family and duration of time that Primary Caregivers' living with patients had shown statistically significant association with level of knowledge on treatment regimen and follow up care among Primary Caregivers' of patient with Pulmonary Tuberculosis with chi-square value of $\chi^2 = 2\ 3.588$, $\chi^2 = 21.362$, and $\chi^2 = 24.092$, significant at $p < 0.001$ level. The demographic variable previously any family members affected with TB had shown statistically significant association with level of knowledge level on treatment regimen and follow up care among Primary Caregivers' of patient with Pulmonary Tuberculosis with chi-square value of $(\chi^2 = 9.220)$ at $p < 0.01$ level. The other demographic variables had not shown statistically significant association with level of knowledge level of knowledge on treatment regimen and follow up care among Primary Caregivers' of patient with Pulmonary Tuberculosis.

The present study was supported by the study conducted by Akoijam sangita devi and suman latha (2015) on knowledge and attitude of Caregivers' regarding Pulmonary Tuberculosis. There was a significant positive relationship between level of knowledge and attitude scores of Caregivers' as the level of attitude increases, knowledge level also increases ($r = 0.04$, $p < 0.001$).[6]

Conclusion

The study revealed that 86 (57.33%) subjects had moderately adequate knowledge, 57 (38%) subjects had adequate knowledge and only 7 (4.67%) subjects had inadequate knowledge. It is important for the Caregivers' to mandatorily have adequate knowledge regarding tuberculosis treatment regimen and follow up care to provide complete care to facilitate patient's adherence to drug regimen and there by prevent spreading tuberculosis to achieve the goal "End TB".[4]

Recommendation

- Replication of the study may be done with the large samples in different settings.

- This study can be conducted as a experimental study by giving intervention to the Caregivers'.

- Replication of the same study can be conducted with the patients.

- Comparative study can be done between rural and urban areas.

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