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A Descriptive Study to Assess the Knowledge regarding Multiple Drug Resistance Tuberculosis among Tuberculosis Patients in Selected DOTS Center Gurugram, Haryana

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Abstract: ***Tuberculosis has become a major cause of deaths among the infectious disease across the globe and India is one of major contributing country amongst them. A descriptive research design with quantitative research approach was used to collect data from 120 tuberculosis patients from selected DOTS centers of Gurugram, Haryana to assess the knowledge of tuberculosis patients regarding Multiple drug resistance tuberculosis by using convenient sampling techniques. Data was collected by using structured knowledge questionnaire and rating scale. Finding reveals that Knowledge score of tuberculosis patients regarding Multiple drug resistance tuberculosis shows that highest percentage (64.16%) of patients were having below average knowledge, 33.5% of patients were having average knowledge and only 3.33% of patients were having good knowledge. Mean, Mean percentage and SD of knowledge of tuberculosis patients regarding Multiple drug resistance tuberculosis shows that out of 32 the maximum obtainable Mean score was 11.2 ± 4.02 which was 35%. It shows that tuberculosis patients have below average knowledge regarding Multiple drug resistance tuberculosis. There knowledge score of patients was significant association with type of family, place of residence, education, family income and previous knowledge gained about MDR TB***

Keywords: level of knowledge, MDR tuberculosis, DOTS centers

1. Introduction

The emergence of drug-resistant tuberculosis (DR-tuberculosis) is a worldwide problem. India has the highest absolute burden (2.8 million) of tuberculosis and multidrug-resistant (MDR) tuberculosis (0.13 million) patients in the world. A tuberculosis patient can infect several people prior to the diagnosis and initiation of treatment through droplet nuclei by coughing or sneezing. Practices like covering of mouth before coughing/sneezing along with safe disposal of sputum can prevent spread of tuberculosis Moreover, safe disposal of sputum can significantly reduce the spread of disease. Knowledge and perception of contact susceptibility to droplet infection in tuberculosis patients is known to establish their behavior and determine the quantum of incidence and level of transmission in the contacts. A study done in Namibia has shown that knowledge regarding tuberculosis and its treatment are significantly associated with high rates of default in tuberculosis patients. Imparting health education relating to safe sputum disposal among tuberculosis patients is recommended by the tuberculosis control program in India.

Need for the Study

According to **WHO (2017)**, Tuberculosis is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV negative people (down from 1.7 million in 2000) and an additional 374,000 deaths among HIV positive people. An estimated 10.4 million people (90% adults; 65% male; 10% people living with HIV) fell ill with TB in 2016 (i.e. were incident cases). The top five countries, with 56% of estimated cases, were (in descending order) India, Indonesia, China, the Philippines and Pakistan.

In 2012, in anticipation of the end of the eras of the MDGs and Stop TB Strategy, WHO's Global Tuberculosis Programme initiated the development of a post-2015 global TB strategy. Following 2 years of consultations, the proposed strategy was discussed at the 2014 World Health Assembly, where it was unanimously endorsed by all Member States. That strategy is now known as the End TB Strategy.

The End TB Strategy "at a glance" is shown in Table 1. It covers the period 2016–2035 and the overall goal is to "End the global TB epidemic", defined as around 10 new cases per 100 000 population per year. This is the level found in countries considered to have a low burden of TB in 2015.

2. Review of Literature

A retrospective study in conducted Nagpur, 249 tuberculosis affected people were taken for the study .The study shows that a total of 249 treatment tuberculosis patients diagnosed as having MDR TB were included. Majority 84 (34%) of cases were from 25 to 34 years of age group, which is reproductive age group. Among the MDR TB cases 177 (71%) were male and 72 (29%) were female. The proportion of MDR TB among different sub categories of retreatment tuberculosis cases were relapse 117 (47%) treatment failure 96 (39%), treatment after default 22 (9%) and others 14 (6%) . Study finding highlight high proportion of MDR TB among the relapse and treatment failure cases treated under RNTCP and need for early detection of MDR TB among these high risk groups.

A cross- sectional study conducted to examine the pattern of TB drug resistance among HIV - negative pulmonary TB patients in regions near the Iranian border. 300 HIV -

negative, pulmonary smear - positive TB patients. Demographic and clinical data were provided using a questionnaire and information from patient records. This study show that the mean age of the patient was 52.03 years and 54% were male. The prevalence of resistance to any TB drug was 13.6% (38cases). Eleven percent of the new treatment TB group (28 patients)and 40.7% of the retreatment TB group (11 patient) were resistant to all TB drugs. Twelve (4.3%) patients had multidrug - resistance tuberculosis (2.38%in the new TB treatment group and 23.1%in the retreatment group). One patient had extensively drug - resistant tuberculosis (XDR-TB). There was a statistically significant relationship between TB drug resistance and smoking (p= 0.02) and a history of migration from village to city (p=0.04), also between TB resistance and recurrence of TB in patients that had previously received treatment (p<0.001). This study show that knowledge of drug resistance patterns for new and previously treated cases is critical for effective control of MDR-TB in different regions of the country.

A descriptive study conducted to investigate the anti-TB treatment adherence rate and to identify factors related to eventual non-adherence among kosovo TB patients. This study was conducted during 12 months, using the standardized questionnaire with total 324 patients. The study show that the overall non-adherence for TB patient cohort was 14.5%, 95% CI (0.109-0.188). Age and place of residence are shown to have an effect of treatment adherence. Moreover, the knowledge of the treatment prognosis, daily doses, side effects, and length of treatment also play a role. This was also reflected knowledge regarding compliance with regular administration of TB drugs, satisfaction with the treatment, interruption of TB therapy, and the professional monitoring in the administration of TB drugs. This study shown that the level of non-adherence TB treatment in kosovar patients is not satisfying, and more health care worker's commitments need to be addressed for improvement.

A cross sectional study conducted in West Armachiho and Metema districts between feburary 1 and june 25 2014. The study shows that 124 smear positive pulmonary Tuberculosis Patients 117 (94.4%) were susceptible to rifampicin while 7 (5.7%) were confirmed to be resistant to rifampicin and isoniazid. The overall prevalence of MDR-TB was 5.7% (2.3% among new cases and 13.9% among previously treated cases). History of previous treatment (OR=7, p=0.025) was significally associated risk factor for MDR-TB. The overall prevalence of MDR-TB was 5.7% among cases at five health centres and a history of previous treatment was found to be a risk factors for being infected by an MDR-TB strain.

Objectives

- To assess the level of knowledge regarding multiple drug resistance tuberculosis in Tuberculosis patients.
- To determine the association between knowledge regarding multiple drug resistance tuberculosis with selected demographic variables.

Hypothesis

H_1: There will be significant association between knowledge score and selected demographical variables.

H_{01}: There will be no significance association between knowledge score and selected demographical variables.

3. Operational Definitions

Assess: It refers to the statistical measurement of level of knowledge regarding multiple drug resistance tuberculosis among the tuberculosis affected people.

Knowledge: It refers to ability of tuberculosis patients to respond correctly to the knowledge items related to causes, risk factors, treatment regimen, diet and preventive measures by structured knowledge questionnaire and categorized as very good, good, average and below average.

Tuberculosis patient: It refers to people who are diagnosed to be infected with Mycobacterium tuberculi and are in different category of treatment under DOTS centers at urban area in Gurugram, Haryana.

Multiple Drug Resistance Tuberculosis: It refers to people who are diagnosed to be infected with Mycobacterium tubercli bacteria that are resistant to the treatment with at least one of the most effective first line anti-tuberculosis medication i.e. isoniazid and rifampicin under DOTS centers of Gurugram, Haryana.

DOTS centers: It refers to the centers where tuberculosis affected people comes to treat the tuberculosis infection in the selected centers of Gurugram, Haryana.

4. Methodology

Research approach

A quantitative research approach was used to assess the knowledge of tuberculosis patients regarding multiple drug resistance tuberculosis in selected DOTS center

Research design

In this study a **descriptive design** was used to assess the knowledge of tuberculosis patients regarding multiple drug tuberculosis.

Research setting- Selected DOTS center of Gurugram, Haryana.

Population- All the tuberculosis affected patients who are taking treatment in selected DOTS center of Gurugram, Haryana.

Sample- Tuberculosis affected patients who were visiting in selected DOTS center of Gurugram, Haryana.

Sample size- 120

Sampling techniques- Purposive sampling technique

Sampling Criteria

Inclusion criteria:

- Those patients who were willing to participate.
- Those patients who were available at the time of data collection.
- Patient who are above 15 years of age.

Exclusion Criteria

- Those patient who were suffering from chronic disorders like cancer and HIV.

5. Results and findings

Percentage wise distribution of tuberculosis patients, according to their age depicts that 45.83% were at age group of 16-30 years, more patients were male (59.16%), most of them belongs to Hindu religion (73.33%), most of them were living in rural area (64.16%) and staying in nuclear family (55.83%). Majority of them were have low education up to primary (30.83%), most of them are unemployed (49.16%), more of them were non vegetarians and most of them they had no knowledge regarding multiple drug resistance TB(78.33%).

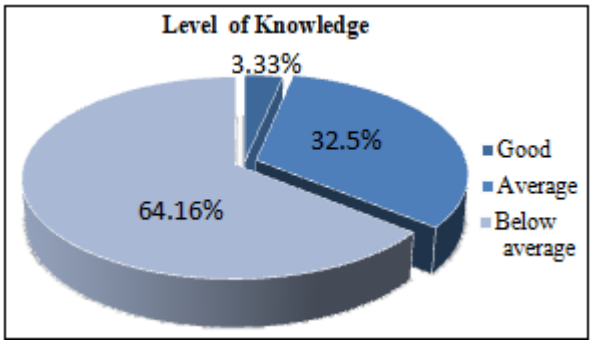

Figure 12: Pie chart showing the percentage wise distribution of tuberculosis patients according to their level of knowledge regarding MDR TB

Percentage wise distribution of tuberculosis patients according to their level of knowledge regarding Multiple drug resistance tuberculosis shows that highest percentage (64.16%) of patients were having below average knowledge, 32.5% of patients were having average knowledge and only 3.33% of patients were having good knowledge regarding Multiple drug resistance tuberculosis.

Table 5: Area wise mean, SD and mean percentage of knowledge score of tuberculosis patients regarding MDR TB. N=120

Area wise distribution of knowledge	Maximum score	Knowledge score		
		Mean	SD	Mean %
Introduction and causes	7	3.008	1.45	42.97
Risk factors	3	1.425	0.96	47.50
Sign and symptoms	4	1.225	0.92	30.62
Diagnosis	4	1.433	1.07	35.82
Management	8	2.425	1.4	30.31
Prevention and complication	6	1.583	1.3	26.38
Overall data	32	11.2	4.02	35

Area wise comparison of mean, SD and mean percentage of knowledge score of tuberculosis patients regarding MDR TB among six areas shows that highest percentage mean score (1.42±0.96) which were 47.5% of total score obtained from the area "risk factors" respectively whereas the lowest mean score (1.55±1.3) which is of 26.38% of total score obtained from "prevention and complications". Further, the overall mean score 11.2±4.02 which is 35% of total mean score revealing that tuberculosis patients have below average knowledge regarding Multiple drug resistance tuberculosis.

There was no significance association between knowledge score of patients when compared to age, gender, religion, occupation and dietary pattern. Thus, null hypothesis for these variables are accepted and for remaining variables null hypothesis rejected.

6. Implications

Nursing service

- The content of the research study can be used by the nurse to evaluate the effectiveness of treatment plan for the patient as well as the existing lacunae.
- The findings will help the nursing personnel to assess the knowledge of patients and can implement the findings.
- The findings will help the nursing personnel to put their knowledge into practice while caring for the TB affected patient.

Nursing education

- The nurse educators can use the study to implement the findings.
- The findings will help the nursing faculty to give more importance for planning and organizing the teaching plan for TB patients.
- The study findings will help the nursing personnel to improve their experience through in-service education programs.

Nursing research

- The findings can be utilized for conducting research for meta analysis and meta synthesis.
- The research can be utilized to conduct research on efficacy of treatment regimen and client's adherence.

7. Recommendations

- A large scale study can be done for replication to standardize the knowledge gap existed in the communication.
- An experimental study can be undertaken with control group.
- A explorative study can be conducted on the assessment of knowledge in TB patients.
- An informational booklet can be prepared to educate them.
- A study can be done to find out the effectiveness of TB control programs in the country.

8. Conclusion

The overall knowledge score of the tuberculosis patient is 35%. They have very less knowledge (64.16%) regarding

MDR TB. The research study significantly associated with the type of family, place of residence, education level, family income and previous information gained regarding MDR TB.

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