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Original Research Article

TO MEASURE THE INCIDENCE OF TUBERCULOSIS DRUG RESISTANCE IN RE-TREATMENT CASES AND ANALYZES EXPOSURES IN PATIENTS.

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Abstract

Background & Method: Present study was conducted with an aim to measure the incidence of tuberculosis drug resistance in re-treatment cases and analyzes exposures in patients. The patient who was diagnosed as a case of Respiratory Medicine sputum positive attending the OPD, IPD and are registered for re-treatment cases at Amaltas Institute of Medical Sciences, Dewas, M.P. A total no of 100 patients of re-treatment cases who gave oral informed consent were registered as subjects. In present study educational status was classified as following Illiterate – Unable to read or write or Able to sign one"s own name.
Result: Pearson Chi-Square = 4.757, DF = 1, P-Value = 0.029, total male subjects – 82. 76.12%: RNTCP group, 93.94%: Non RNTCP group Female subjects- 18. 23.88%: RNTCP group.6.06%: Non RNTCP group.
Conclusion: Our study was carried on subjects who were sputum positive for acid fast bacilli and had a history of taking previous anti tubercular treatment. Drug resistance was identified in our study population as 11% Mono drug & 12% Multi Drug Resistance. Isoniazid [14%] was the most common drug against which drug resistance was identified.

Keywords: tuberculosis, drug resistance & incidence.

Introduction

Tuberculosis patients who are also illicit drugs users or alcohol abusers are more contagious and remain contagious longer because treatment failure presumably extends periods of infectiousness[1]. Mortality rates are high among Tuberculosis patients who discontinue treatment, especially when associated with HIV infection[2].

The development of MDR-Tuberculosis, defined as resistance of the bacillus to at least Isoniazid and Rifampicin, is currently one of the biggest challenges for Tuberculosis control.

Factors identified to be associated with treatment default are: lack of knowledge about the disease, distance from the health post, partial or complete regression of symptoms in the first two months of treatment, the side effects associated with the medication, male gender, age, the use of toxic substances and hospitalization during treatment, pre-existingpulmonary disease, previous default, Tuberculosis /HIV co-infection, absence of supervised treatment and poor quality of patient care at the Health Unit[3].

Drug resistance in a patient who has never received anti-Tuberculosis treatment previously is termed as primary resistance.Acquired resistance is that which occurs as a result of specific previous treatment. The terminitial resistance is used to indicate primary resistance and resistance among patients whose history of previous chemotherapy is not known[4].

Causes

The emergence of drug resistance in Tuberculosis patients is a result of a deficient or deteriorating Tuberculosis control program.

Factors related to the development of drug resistance include:

- Inadequate or inefficient administration of effective treatment
- Poor case holding
- Use of sub-standard drugs
- Inadequate or irregular drug supply
- Ignorance of healthcare workers in the treatment and control of Tuberculosis; Interruption of chemotherapy due to side effects
- Non adherence of patients to the prescribed regimens
- Availability of Anti-Tuberculosis drugs without prescription
- Illiteracy

Material & Method

The patient who was diagnosed as a case of Respiratory Medicine sputum positive attending the OPD, IPD and are registered for re-treatment cases at Amaltas Institute of Medical Sciences, Dewas, M.P. from Nov 2019 to Oct 2020

A total no of 100 patients of re-treatment cases who gave oral informed consent were registered as subjects.In present study educational status was classified as following Illiterate – Unable to read or write or Able to sign one‟s own name.

INCLUSION CRITERIA:

1.Diagnosed cases of Pulmonary Tuberculosis who have been registered in RNTCP as re-treatment cases under DOTS centre.

2.Age group more or equal to 18 yrs.

EXCLUSION CRITERIA

1.Patients suffering from Extra Pulmonary Tuberculosis

2.Critically ill patient.

3.Pulmonary Tuberculosis with Human Immunodeficiency Virus

4.Patient unwilling for study

Results

Table 01: Distribution of SEX in Source

			Source			
Sex	Non RNTCP		RNTCP		Total	
	No.	%	No.	%	No.	%
Female	2	6.06	16	23.88	18	18.00
Male	31	93.94	51	76.12	82	82.00
Total	33	100.00	67	100.00	100	100.00

Pearson Chi-Square = 4.757, DF = 1, P-Value = 0.029, total male subjects – 82. 76.12%: RNTCP group, 93.94%: Non RNTCP group Female subjects- 18. 23.88%: RNTCP group.6.06%: Non RNTCP group

Table 02: Types of Intolerance in Female

	Female					
Types of Intolerance	**Non RNTCP**		**RNTCP**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Decreased Appetite	0	0.00	0	0.00	0	0.00
Dizziness	0	0.00	1	12.50	1	11.11
Ghabrahat	0	0.00	0	0.00	0	0.00
Headache	0	0.00	0	0.00	0	0.00
Vertigo	0	0.00	0	0.00	0	0.00
Vomiting	1	100.00	7	87.50	8	88.89
Total	1	100.00	8	100.00	9	100.00

Pearson Chi-Square = 0.141, DF = 1

Table 03: Types of Intolerance in Male

Types of Intolerance	Male					
	Non RNTCP		RNTCP		Total	
	No.	%	No.	%	No.	%
Decreased Appetite	0	0.00	3	10.34	3	7.14
Dizziness	0	0.00	6	20.69	6	14.29
Ghabrahat	6	46.15	6	20.69	12	28.57
Headache	0	0.00	3	10.34	3	7.14
Vertigo	0	0.00	2	6.90	2	4.76
Vomitting	7	53.85	9	31.03	16	38.10
Total	13	100.00	29	100.00	42	100.00

Pearson Chi-Square = 9.539, DF = 5

Table 04: Association between Drug resistant and reason of registration

Types of drug resistant	Defaulter		Failure		Relapse		All	
	NO.	%	NO.	%	NO.	%	NO.	%
MDR	8	16.67	0	0.00	4	10.26	12	12.00
Mono resistance	6	12.50	0	0.00	5	12.82	11	11.00
Poly resistance	1	2.08	0	0.00	0	0.00	1	1.00
No	33	68.75	13	100	39	76.92	76	76.00
All	48	100	13	100	39	100	100	100

Pearson chi- square =6.581, Df = 6, P-Value = 0.3613

Discussion

Transcendently male individuals [82%] are engaged with our review which matches with the information of any remaining investigations like Sachdeva et al [5] had a prevalent populace of guys 70%, Jha et al[6] had 75.6% guys and 24.4% females . In a review led by Balu et al[7] the male populace included 65.3% and 34.7% female populace.

The pace of obstruction in recently treated cases are in fluidly higher than in recently analyzed cases, however information on opposition in recently treated patients are restricted. The longitudinal pattern of medication opposition in Gujarat somewhere in the range of 1980 and 1986 shows that in treatment disappointment or backslid patient, protection from Rifampicin expanded from 2.8% in 1980 37.3 percent in 1986 and to Isoniazid from 34.5 percent to 55.8 percent. It was assumed that undeniable degree of Rifampicin opposition was for the most part acquired[8].

A review was led by the ICMR to contrast the adequacy of SCC and the regular non Short Course Chemotherapy in North Arcot region, Tamil Nadu. The populace was analyzed during There follow-up period to affirm the bacterial tranquility and inturn the viability of SCC. It was tracked down that there was an expansion in the recurrence of obstruction in recently treated patient with 67% protection from Isoniazid, 26% to streptomycin and 12 percent to Rifampicin. What's more, 6% of strains tried were protection from both Isoniazid and Rifampicin.

A review from New Delhi in the 1990s[9] additionally showed a more significant level of opposition in recently offered patients Isoniazid and Rifampicin, which is practically like that of the Gujarat report[10].

A review directed by the Institute of Thoracic Medicine, Chennai[11] pointed toward discovering the commonness of Tuberculosis obstruction in four Districts Tuberculosis Centers in Tamil Nadu, showed that obtained opposition was 63%, out of which 23.5 percent were protection from single medication and 39.5 percent impervious to more than drug. In an as of late directed concentrate in Bengaluru, the multidrug obstruction in recently treated cases was found to be12.8 percent and went from 8.4 percent to 17.2 percent. The extent of 12% MDR-Tuberculosis in recently treated patient seems, by all accounts, to be comparable in different DOTS carried out regions, like Hong Kong and Nepal.

Conclusion

Our study was carried on subjects who were sputum positive for acid fast bacilli and had a history of taking previous anti tubercular treatment.Drug resistance was identified in our study population as 11% Mono drug & 12% Multi Drug Resistance. Isoniazid [14%] was the most common drug against which drug resistance was identified.

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