STUDY OF IMPACT OF PULMONARY AND GENITAL TUBERCULOSIS ON MENSTRUAL PATTERN OF WOMEN IN A TERTIARY CARE REFERRAL CENTRE

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ABSTRACT

BACKGROUND

TB affects female reproductive health and clinically can present in different ways to tax the ingenuity of the best doctors. In this project, we want to analyse the behaviour of tubercular infection on female reproductive health.

Aims and Objectives - 1) To study the impact of pulmonary and genital tuberculosis on menstrual pattern of women (like disordered menstruation). 2) To study of effect of anti-tuberculous treatment on the menstrual pattern of women in terms of oligomenorrhoea and irregular menstruation in a subset of patients.

MATERIALS AND METHODS

It was a cross sectional observational study done on 100 women attending OPD. They were divided into two groups. GROUP A: 50 women with pulmonary /genital TB with menstrual abnormality and GROUP B: 50 women on ATT and menstrual abnormality. Data was collected in terms of age, socio-economic status, parity, menstrual abnormalities, BMI, symptoms and signs of tuberculosis, associated comorbid conditions, usage of ATT, treatment response in relation to symptomatic relief and defaulters and data was analysed.

RESULTS

In group A: The majority, 22% were in the age group of 26-30 years. In Group B: The majority 26% were in the age group of 15-20 years. Most women in both the groups were in middle class- 46% and 38% respectively. Among GROUP A: one third 32% were nulliparous, where as in GROUP B, 38% were in para 3 group. Among GROUP A: 46% had normal cycles, 28% had irregular cycles. Among GROUP B: 72% had normal cycles, only 16% had irregular cycles. Group A: 72% were below 50 kgs, Group B: 84% were less than 50kgs. Group A: 70% had loss of appetite & weight, Group B: 82% had loss of appetite and weight. Group A: 50% had anaemia, 8% had HIV infection, 2% had thyroid disorders and 40% were without any comorbid conditions. Whereas in Group B: only 26% had anaemia, 14% had HIV infection, 4% had associated diabetes and 56% were without any comorbidity. In Group A: Only 10% completed the course, 42% are still using ATT, 34% were Defaulters and 14% were having multidrug resistance. Whereas in Group B: 56% completed the course, 44% were using drugs, there were no women with multidrug resistance and none of them were defaulters. In Group A: 66% had normal cycles where as 92% had normal menstruation after treatment in Group B.

CONCLUSION

Genital TB is a major cause of infertility in women, and prevalence is generally underestimated because of the asymptomatic nature of the infection and diagnostic challenges. Screening for genital TB needs to be a part of evaluation of infertility and menstrual abnormalities. Hence, early diagnosis and correct treatment is vital to avoid complications and to restore fertility.

KEYWORDS

Tuberculosis, Menstrual Abnormalities, Anti Tuberculous Treatment.

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BACKGROUND

Tuberculosis is a major public health problem worldwide despite a declining trend in mortality, with effective diagnosis and treatment. An estimated 10.4 million people developed TB in 2015 and more than half of the TB cases (60%) were seen in South-East Asia and Western Pacific Regions.[1] Pulmonary TB today still occupies first position followed by genital TB depending on the affected population.[2] It has been estimated that approximately 5% of females presenting to subfertility clinics worldwide have genital TB.[3] In 80-90%of cases, FGTB affects young women between 18 and 38 years of age and is an important cause of infertility.[4,5] Tuberculous infection of the female genital organs can result in infertility, dyspareunia, menstrual irregularities and chronic pelvic inflammatory disease (PID).[6] So, we undertook this study to know the association

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between tuberculosis and menstrual irregularities in our part of the world.

Aims and Objectives

1. To study the impact of pulmonary and genital tuberculosis on menstrual pattern of women like disordered menstruation.
2. To study of effect of anti-tuberculous treatment on the menstrual pattern of women in terms of oligomenorrhoea and irregular menstruation in a subset of patients.

MATERIALS AND METHODS

It's A Cross Sectional Observational Study done by Simple Random Sampling.

100 Women Attending OPD were included in the study. They were divided into two groups. GROUP A: 50 Women With Pulmonary /Genital TB with Menstrual Abnormality and GROUP B: 50 Women On ATT And Menstrual Abnormality, After fulfilling the inclusion criteria.

Inclusion Criteria

All the patients who were diagnosed as tuberculosis either pulmonary or genital with menstrual irregularities and consented to participate in the study were included.

Patients were labelled positive if any of the following criteria were fulfilled 1) Positive sputum for AFB. 2) Positive 24 hr urinary AFB. 3) Culture positive for AFB. 4) Positive TB PCR. 5) Endometrium sampling positive for AFB.

Exclusion Criteria

Patients with other identifiable cause of menorrhagia like fibroids, polyps, endometrial hyperplasia were excluded from the study. Data was collected in terms of Age, Socio economic status, Parity, Menstrual abnormalities, BMI, Symptoms and signs of tuberculosis, Associated co morbid conditions, Usage of ATT, Treatment Response In Relation To Symptomatic Relief And defaulters and Analysis Done By Appropriate Statistical Method – Median, Mean, Chi square, T Test, P Value By Using Newer SPSS Version.

RESULTS

100 Women were included in the study .they were divided into two groups. Group A: 50 Women with Pulmonary /Genital TB with Menstrual Abnormality and Group B: 50 Women On ATT And Menstrual Abnormality.

Age Group (Years)	Group A(n=50) No. of Women (%)	Group B(n=50) No. of Women (%)
15-20	10 (20%)	13 (26%)
21-25	07 (14%)	08 (16%)
26-30	11 (22%)	07 (14%)
31-35	07 (14%)	08 (16%)
36-40	05 (10%)	03 (06%)
>40	10 (20%)	11 (22%)
Total	50 (100%)	50 (100%)

Table 1. Age Wise Distribution of Women

In group A: The majority of women 22% were in the age group of 26-30years whereas least number 10% were seen in above 36-40 years age group. In Group B: The majority of women 26% were in the age group of 15-20 years whereas least number 6% were seen in above 36-40 years age group.

Socio Economic Status	Group A (n=50) No. of Women (%)	Group B (n=50) No. of Women (%)
Lower class	18 (36%)	17 (34%)
Middle class	23 (46%)	19 (38%)
Upper class	09 (18%)	14 (28%)
Total	50 (100%)	50 (100%)

Table 2. Socio-Economic Status

Majority of women in both the groups A and B were in middle class 46% and 38% respectively. Only 18% of them were in upper class in group A And 28% in group B.

Parity	Group A(n=50) No. of Women (%)	Group B(n=50) No. of Women (%)
Primipara	02 (04%)	02 (04%)
Para 2	09 (18%)	05 (10%)
Para 3	13 (26%)	19 (38%)
Multiparous	10 (20%)	08 (16%)
Nulliparous	16 (32%)	16 (32%)
Total	50 (100%)	50 (100%)

Table 3. Parity Wise Distribution

Among Group A women: one third of women that is 32% were nulliparous. Whereas in GROUP B, majority 38% were in para 3 group and only 4% were primiparous women in both the groups.

Menstrual Abnormalities	Group A(n=50) No. of Women (%)	Group B(n=50) No. of Women (%)
Oligomenorrhea	02 (04%)	02 (04%)
Menorrhagia	04 (08%)	01 (02%)
Irregular cycles	14 (28%)	08 (16%)
Secondary amenorrhoea	05 (10%)	03 (06%)
Premature menopause	02 (04%)	Nil (0%)
Normal cycles	23 (46%)	36 (72%)
Total	50 (100%)	50 (100%)

Table 4. Menstrual Abnormalities

Among Group A women: 46% of them had normal cycles, 28% of them were having irregular cycles, 10% had secondary amenorrhoea, 8% had menorrhagic cycles and 4% of them had oligomenorrhoea and another 4% had premature menopause. Among GROUP B women: 72% of them had normal cycles, only 16% had irregular cycles, 6% secondary amenorrhoea, 4% oligomenorrhoea and 2% menorrhagia and there was no women with premature menopause.

Weight of the Patient	Group A (n=50) No. of Women (%)	Group B (n=50) No. of Women (%)
<50 Kgs (underweight)	36 (72%)	42 (84%)
50kgs (normal weight)	10 (20%)	08 (16%)
>50kgs (over weight)	04 (08%)	Nil (0%)
Total	50 (100%)	50 (100%)

Table 5. Weight of the Women

Among the Group A women 72% were below 50 kgs weight and only 8% of them were more than 50 kgs. Whereas in Group B 84% were less than 50kgs and none of them were above 50kgs weight.

Symptoms and Signs of TB	Group A (n=50) No. of Women (%)	Group B (n=50) No. of Women (%)
Loss of appetite and loss of weight	35 (70%)	41 (82%)
Urinary complaints	02 (04%)	01 (02%)
haemoptysis	Nil (0%)	02 (04%)
White discharge PV	06 (12%)	Nil (0%)
Without any complaints	07 (14%)	06 (12%)
Total	50 (100%)	50 (100%)

Table 6. Symptoms and Signs of Tuberculosis

In Group A Women 70% of them had loss of appetite and loss of weight, 12% had white discharge per vagina, 4% had urinary complains and 14% of them did not have any complaints. Among Group B women: 82% had loss of appetite and weight, 4% had haemoptysis, 2% had urinary symptoms and 12% were without any symptoms.

Co Morbid Conditions	Group A (n=50) No. of Women (%)	Group B (n=50) No. of Women (%)
Anaemia	25 (50%)	13 (26%)
Thyroid disorders	01 (02%)	Nil (0%)
HIV infection	04 (08%)	07 (14%)
Diabetes	Nil (0%)	02 (04%)
Without co morbidity	20 (40%)	28 (56%)
Total	50 (100%)	50 (100%)

Table 7. Associated Co Morbid Conditions

Among Group A Women: 50% of them had anaemia, 8% of them had HIV infection, 2% had thyroid disorders and 40% were without any co morbid conditions. Where as in Group B Women: only 26% had anaemia, 14% had HIV infection, 4% had associated diabetes and 56% were without any co morbidity.

Drugs	Group A (n=50) No. of Women (%)	Group B (n=50) No. of Women (%)
Completed course	05 (10%)	28 (56%)
Using drugs	21 (42%)	22 (44%)
Defaulters	17 (34%)	Nil (0%)
Multidrug resistance	07 (14%)	Nil (0%)
Total	50 (100%)	50 (100%)

Table 8. Usage Of Anti Tuberculous Drugs

In Group A: Only 10% of them completed the course, 42% are still using ATT, 34% of them were Defaulters and 14% were having multidrug resistance. Whereas in Group B: 56% completed the course, 44% were using drugs, there were no women with multidrug resistance and none of them were defaulters.

Symptoms Improved	Group A (n=50) No. of Women (%)	Group B (n=50) No. of Women (%)
Menstrual cycle	Normal cycles 33/50 (66%)	Normal cycles 46/50 (92%)
Improved appetite	Normal appetite 25/50 (50%)	Normal appetite 35/50 (70%)
Decreased Urinary symptoms	One patient had decreased symptoms	One patient had decreased symptoms
Sense of well being	30 /50(60%)	45/50 (90%)

Table 9. Treatment Response in Relation to Symptomatic Relief

In Group A: 66% of women had normal cycles where as 92% of them had normal menstruation after treatment among Group B women.50% and 70% of them had normal appetite respectively in Group A versus Group B women which was significant.

DISCUSSION

TB associated with disordered menstruation

The Age Difference In The Group A is due to most of our patients (22%) presented as infertility and menstrual irregularities in 26 to 30 years age group so they reported to the hospital early for assessment of their fertility status and hence were diagnosed early. In group B: The majority (26%) of them were in teenage group because they were not able to understand the disease process and the significance of diet and treatment of anaemia, So inspite of ATT there were many teens with stress induced menstrual irregularities. Whereas The FGTB is present in younger age (20–40 years) as compared to premenopausal age in developed countries. It may be due to younger age at marriage and child bearing in developing countries as compared to western world.[7]

We found that the percentage of menstrual irregularities reduced to 2% in lower class and 8% in middle class group, this was due to Effective counselling, early registration in the RNTCP centres and free medication. Whereas in the upper class group the menstrual irregularities continued in spite of ATT among 10% of

women, this was due to social stigma, they were not utilising the services of RNTCP centres judiciously. Sharma et al in his study found that Predisposing factors for TB were poverty, overcrowding with improper ventilation, inadequate access to health care, malnutrition, diabetes mellitus, smoking, alcohol and drug abuse, end stage renal disease cancer treatment haemodialysis patients and patient with HIV infection.[8]

In Group A: The nulliparous women were more 32%, since there was infertility among them due to PID pelvic inflammatory disease where as it was 38% in GROUP B, since they were having immunocompromised state and anaemia due to repeated pregnancies in those parous women. They also had anaemia due to pregnancy because of the possible effect of ATT on the mother and nausea and vomiting of pregnancy. Gatongi et al found that Genital tract TB was a chronic disease that often presents with low grade symptomatology and very few specific complaints. Presenting symptoms were generally varied; infertility being the most frequent clinical presentation (43-74%). Other clinical presentations include oligomenorrhoea (54%), amenorrhoea (14%), menorrhagia (19%), abdominal pain (42.5%), dyspareunia (5-12%) and dysmenorrhoea (12-30%).[9]

In Group A: Only 46% of them had normal cycles where as in Group B 72% of them had normal cycles which show 26% improvement in the regularity of the cycles after ATT. After ATT there was significant improvement in the menstrual flow also. Similar findings were found in a study done by Nigam et al.[10]

Three forth of women in Group A were below 50kgs by the time they were diagnosed to have tuberculosis due to loss of appetite because of the disease process. 8% of women were more than 50kgs weight, it was due to associated hypothyroidism. Similarly 84% of them were less than 50kgs weight even in the treatment group. This is be due to associated co morbid conditions like Anaemia, Diabetes and HIV, Lower socio-economic status and dietary deficiency and also decreased intake of food due to nausea and vomiting because of anti-tubercular drugs. These results were comparable with the results of Moatter T et al.[11]

The urinary complaints have reduced to 50% where as white discharge per vaginum was reduced to 100% in the treatment group when compared to the Group A women.12% of women were without any complaints in the treatment group. Loss of weight and loss of appetite was present significantly even in the treatment group because of the co morbid conditions, Decreased intake of balanced diet with defective absorption. Gupta N et al studied that Up to 11% of women with genital TB may be asymptomatic. The age of presentation in 80% of women is 20-40 years age group especially in developing countries. Infertility is the commonest presentation of genital TB due to the involvement of fallopian tubes (blocked and damaged tubes), endometrium (non-reception and damaged endometrium with Asherman's syndrome) and ovarian damage with poor ovarian reserve and volume.[12]

There was significant improvement in anaemia, only 26% were anaemic in the treatment group when compared to the group A which was 50%.this shows that there was definitely good improvement when women were on ATT and completed the course in time. we had to extend the treatment for more period when they were associated with co morbid condition like HIV. India has about 1.8 million new cases of tuberculosis annually, accounting for a fifth of new cases in the world — a greater number than in any other country.[13]

Group B women had lot of compliance when compared to Group A women. They were using ATT regularly, that was due to proper counselling in the initial period of the ATT course. Once they started using ATT and had sense of well-being they continued to use it. The motivation in the initial period had a positive effect. Laparoscopic findings such as tubercles, caseous tubercles and encysted ascites may disappear after ATT; however, severe findings such as adhesions may persist.[14] Among Group B patients 16% of women in our study also had irregular periods inspite of Anti Tuberculous Treatment.

Menstrual abnormalities in our study, in both the groups together we had 44% irregular cycles, 8% oligomenorrhoea, 10% menorrhagia, 16% secondary amenorrhea, 4% premature menopause. In most cases, the disease is asymptomatic or can present with a few symptoms among which infertility is the most common. Other symptoms reported are menstrual irregularities such as oligomenorrhoea, hypomenorrhoea, amenorrhoea, menorrhagia, dysmenorrhoea, metrorrhagia, pelvic pain and abnormal vaginal discharge.[15]

CONCLUSION

Genital TB is a major cause of infertility in women, and prevalence is generally underestimated because of the asymptomatic nature of the infection and diagnostic challenges. Large multicentric studies are needed to estimate the magnitude of FGTB and to identify the most sensitive test for diagnosis. Clinicians need to be aware of this important cause of infertility and menstrual dysfunction in women. Screening for genital TB needs to be a part of evaluation of infertility and menstrual abnormalities. Most of the patients present in advanced stage had scarring, severe fibrosis and adhesions; treatment outcomes, especially with regard to infertility, are poor. Hence, early diagnosis and correct treatment is vital to avoid complications and to restore fertility.

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