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

M. Vijayasree

1Professor and HOD, Department of Obstetrics and Gynaecology, Mamata Medical College, Khammam, Telangana.

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 oligomenorrhea 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 comorbidity 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.

HOW TO CITE THIS ARTICLE: Vijayasree M. Study of impact of pulmonary and genital tuberculosis on menstrual pattern of women in a tertiary care referral centre. J. Evid. Based Med. Healthc. 2018; 5(47), 3297-3301. DOI: 10.18410/jebmh/2018/670

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
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 the effect of anti-tuberculous treatment on the menstrual pattern of women in terms of oligomenorrhea 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 morbidity 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.

<table>
<thead>
<tr>
<th>Age Group (Years)</th>
<th>Group A(n=50) No. of Women (%)</th>
<th>Group B(n=50) No. of Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20</td>
<td>10 (20%)</td>
<td>13 (26%)</td>
</tr>
<tr>
<td>21-25</td>
<td>07 (14%)</td>
<td>08 (16%)</td>
</tr>
<tr>
<td>26-30</td>
<td>11 (22%)</td>
<td>07 (14%)</td>
</tr>
<tr>
<td>31-35</td>
<td>07 (14%)</td>
<td>08 (16%)</td>
</tr>
<tr>
<td>36-40</td>
<td>05 (10%)</td>
<td>03 (06%)</td>
</tr>
<tr>
<td>&gt;40</td>
<td>10 (20%)</td>
<td>11 (22%)</td>
</tr>
<tr>
<td>Total</td>
<td>50 (100%)</td>
<td>50 (100%)</td>
</tr>
</tbody>
</table>

**Table 1. Age Wise Distribution of Women**

In group A: The majority of women 22% were in the age group of 26-30 years 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.

<table>
<thead>
<tr>
<th>Socio Economic Status</th>
<th>Group A (n=50) No. of Women (%)</th>
<th>Group B (n=50) No. of Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower class</td>
<td>18 (36%)</td>
<td>17 (34%)</td>
</tr>
<tr>
<td>Middle class</td>
<td>23 (46%)</td>
<td>19 (38%)</td>
</tr>
<tr>
<td>Upper class</td>
<td>09 (18%)</td>
<td>14 (28%)</td>
</tr>
<tr>
<td>Total</td>
<td>50 (100%)</td>
<td>50 (100%)</td>
</tr>
</tbody>
</table>

**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.

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

**Table 3. Parity Wise Distribution**

Among Group A women: one third of them 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.

<table>
<thead>
<tr>
<th>Menstrual Abnormalities</th>
<th>Group A(n=50) No. of Women (%)</th>
<th>Group B(n=50) No. of Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oligomenorrhoea</td>
<td>02 (04%)</td>
<td>02 (04%)</td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>04 (08%)</td>
<td>01 (02%)</td>
</tr>
<tr>
<td>Irregular cycles</td>
<td>14 (28%)</td>
<td>08 (16%)</td>
</tr>
<tr>
<td>Secondary amenorrhoea</td>
<td>05 (10%)</td>
<td>03 (06%)</td>
</tr>
<tr>
<td>Premature menopause</td>
<td>02 (04%)</td>
<td>Nil (0%)</td>
</tr>
<tr>
<td>Normal cycles</td>
<td>23 (46%)</td>
<td>36 (72%)</td>
</tr>
<tr>
<td>Total</td>
<td>50 (100%)</td>
<td>50 (100%)</td>
</tr>
</tbody>
</table>

**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.
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.

### Table 5. Weight of the Women

<table>
<thead>
<tr>
<th>Weight of the Patient</th>
<th>Group A (n=50) No. of Women (%)</th>
<th>Group B (n=50) No. of Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50 Kgs (underweight)</td>
<td>36 (72%)</td>
<td>42 (84%)</td>
</tr>
<tr>
<td>50kgs (normal weight)</td>
<td>10 (20%)</td>
<td>8 (16%)</td>
</tr>
<tr>
<td>&gt;50kgs (over weight)</td>
<td>4 (08%)</td>
<td>Nil (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>50 (100%)</td>
<td>50 (100%)</td>
</tr>
</tbody>
</table>

In Group A Women 70% of them had loss of appetite and weight, 12% had white discharge per vagina, 4% had urinary complaints 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.

### Table 6. Symptoms and Signs of Tuberculosis

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

In Group A: Only 10% of them completed the course, 42% are still using ATT, 34% of them were Defaulter 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.

### Table 8. Usage Of Anti Tuberculous Drugs

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

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.

### Table 7. Associated Co Morbid Conditions

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

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 morbidity 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.

### Table 9. Treatment Response in Relation to Symptomatic Relief

- **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 in spite of ATT there were many teens with stress induced menstrual irregularities. Whereas The FG TB 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. 

  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 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 in spite of ATT there were many teens with stress induced menstrual irregularities. Whereas The FG TB 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.

J. Evid. Based Med. Healthc., pISSN- 2349-2562, eISSN- 2349-2570/ Vol. 5/Issue 47/Nov. 19, 2018
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 vagina 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 amenorrhoea, 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.

REFERENCES

[2] Schaefer G. Tuberculosis of the genital 'tract in
droegemueller. In: Sctarra JJ, eds. Gynecology &
obstetrics. Revised Ed. New York: Harpers Row
Publisher Inc. 1987:1-20.


