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Original Research Article

## Study the effect of mifepristone on fibroid and uterine volume

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### ABSTRACT

**Background:** Fibroid is the most common benign tumour of the uterus affecting 20% of women of reproductive age group and is the most common indication for hysterectomy accounting for about 40% of all hysterectomies in premenopausal women. This study was undertaken to study the effect of Mifepristone, which is a progesterone receptor modulator with antagonistic action, on fibroid and uterine volume.

**Methods:** The study was conducted in the Department of Obstetrics and Gynaecology, Himalayan Institute of Medical Sciences, Swami Ram Nagar, Dehradun over a period of 12 months. A total of 40 patients were included in the study.

**Results:** Mean baseline fibroid volume decreased by 49.17% at 1 month and by 77.4% and 3 months of treatment with Mifepristone. Mean baseline uterine volume decreased by 34.13% at 1 month, and further reduction by 58.3% at the end of treatment.

**Conclusions:** The study shows that there is a significant reduction in fibroid and uterine volume in patients treated with mifepristone.

**Keywords:** Fibroid volume, Mifepristone, Uterine volume

### INTRODUCTION

Fibroid is the most common benign tumour of the uterus affecting 20% of women of reproductive age group.<sup>1</sup>

It is responsible for 1/3rd of all gynaecological admissions in hospitals.<sup>2</sup> It is the most common indication for hysterectomy accounting for about 40% of all hysterectomies in premenopausal women.<sup>3</sup>

The etiology of uterine fibroid is not clearly known, but they are considered to be progesterone and estrogen dependent tumors because after menopause fibroids tend to shrink in size. Also, after treatment with "gonadotrophin-releasing hormone agonists" which causes a marked reduction in the progesterone as well as

estrogen levels, there is shrinkage of the size of uterine fibroid.<sup>4</sup>

Although in past the mainstay of treatment has been surgery, various medical and non-surgical options have received attention now a days. Medical management these days is especially preferred as it minimises the fibroid related symptoms and is useful in patients where surgery is a contraindication.

The above includes drugs as- Anti progestins that is Mifepristone, Anti-fibrinolytics, Danazol, GnRH analogues, Tranexamic acid, Progestogens.<sup>5</sup>

This study is designed to Study the effect of Mifepristone on fibroid and uterine volume.

**METHODS**

The study was conducted in the Department of Obstetrics and Gynaecology, Himalayan Institute of Medical Sciences, Swami Ram Nagar, Dehradun over a period of 12 months. Subjects were recruited from Obstetrics and Gynaecology OPD at Himalayan Institute of Medical Sciences, Dehradun, after taking a written and Informed consent. Follow up of each subject was done for 3 consecutive months.

The type of the study performed was experimental, pre and post. The study includes 40 subjects with uterine leiomyoma from the Obstetrics and Gynaecology OPD over a period of one year and follow up was done for 3 months.

**Inclusion criteria**

Women of reproductive age group (18-49years) with:

- Symptomatic fibroids
- Asymptomatic patients showing fibroid of size >2.5cm on ultrasonography.

**Exclusion criteria**

- Presence of pregnancy or lactation
- Women desirous of pregnancy
- Suspicious of uterine, ovarian or endometrial malignancies
- H/o hormonal treatment over past 3months
- Presence of any renal, respiratory or heart disease, PID or any other adnexal pathology
- Uterine fibroid >20weeks size
- Atypical endometrial hyperplasia
- Those having contraindication for use of mifepristone

**Study tools:**

Relevant medical, obstetric and menstrual history was taken, past illness if any, relevant personal history, family history, was also be included.

- Case reporting form
- Endometrial biopsy curette
- Histopathology
- Ultrasonography
- Blood investigations- Haemoglobin, Liver Function Test, Kidney Function Test, TSH
- Pictorial Blood Loss Assessment Chart (PBAC)
- Numeric Pain Rating Scale.

**RESULTS**

In the present study, out of 40 patients, 82.5% were >30years of age, 17.50% patients were in the age group of 21-30 years and maximum number were in 41-50years of

age group the mean age of the patients was 38.84 (Table 1).

**Table 1: Age distribution of patients under the study.**

Age Group	Frequency (n=40)	Percentage
21-30	7	17.50
31-40	13	32.50
41-50	20	50

In this study, 45% cases of fibroid uterus were seen in Para-2 and 22.50% were Para-3. 17.50% patients were Para-1 and 10% were nulliparous. This may be because menstrual abnormalities are more common in multiparous women (Table 2).

**Table 2: Distribution according to parity.**

Parity	Frequency (n=40)	Percentage
Nullipara	4	10
Para-1	7	17.5
Para-2	18	45
Para-3	9	22.5
Para-4	2	5

Mean baseline fibroid volume decreased by 49.17% at 1 month and by 77.4% and 3months of treatment with Mifepristone in 35 patients' i.e. 87.5% patients the fibroid volume was less than 10cc after 3 months of treatment.

There was a significant reduction seen in the fibroid volume (Table 3).

**Table 3: Comparison of cases according to fibroid volume (n=40).**

Fibroid volume in cc	At 0 month		At 1 month		At 3 months	
	No.	%	No.	%	No.	%
< 10	12	30	23	57.5	35	87.5
11-20	14	35	10	25	4	10
21-30	5	12.5	5	12.5	0	0
31-40	3	7.5	1	2.5	1	2.5
41-50	2	5	0	0	0	0
51-60	3	7.5	0	0	0	0
61-70	0	0	0	0	0	0
> 70	1	2.5	1	2.5	0	0
Mean	21.13±18.53		10.74±12.95		4.77±4.60	

In this table, the percentage reduction of fibroid volume after treatment with mifepristone is compared to the original volume.

45% patients showed more than 80% reduction in fibroid volume and 32.5% patients showed a reduction between 60 to 80% by the end of treatment as per the ultrasound images (Table 4).

**Table 4: Percentage reduction in the size of fibroid at the end of treatment (n=40).**

Reduction in fibroid volume after treatment	No. of patients	Percentage
0-20	2	5
20-40	4	10
40-60	3	7.5
60-80	13	32.5
80-100	18	45

Mean baseline uterine volume” decreased by 34.13% at 1month, and further reduction by 58.3% at the end of treatment in 25 (62.5%) patients the uterine volume was between 0-50cc and in 14 (35.5%) it was between 51-100cc (Table 5).

**Table 5: Comparison of cases according to uterine volume (n=40).**

Volume of uterus in cc	At 0 month		At 1 month		At 3 months	
	No.	%	No.	%	No.	%
0-50	2	5	19	47.5	25	62.5
51-100	20	50	14	35	14	35.5
101-150	10	25	4	10	1	2.5
151-200	6	15	2	5	0	0
>200	2	5	1	2	0	0
Mean	105.49±50.91		69.91±48.05		43.90±21.49	

## DISCUSSION

In present study, maximum number of patients (51.16%) presented in 41-50years of age group and were of Para-2 (46.5%). There was one study by Sabita et al. in which major number of cases were in the age group of 35-45years, and 50% were Para-2.<sup>6</sup> This can be explained by the fact that fibroids are more common benign tumors seen in the middle age group.

After giving 25 mg mifepristone daily for 3months in present study, and then studying its effect on the volume of fibroid, it was seen that there was a significant reduction in the volume of fibroid by 49.17 per cent at 1 month of treatment, which further reduced by 77.4 per cent after the completion of 3 months of treatment. In 45% patients, the volume of fibroid was reduced by more than 80%.

A study performed by Bagaria et al. included 40 patients to whom 10mg mifepristone was given daily for a period of 3months, and reduction in the volume of fibroid was assessed. It was found that there was a significant reduction in the volume of fibroid by 30 per cent at the end of 3 months of treatment.<sup>7</sup>

In another study by Mukherjee et al. it was observed that after receiving 25mg mifepristone daily for 6months, the volume of fibroid significantly decreased by 47% at the

end of treatment.<sup>8</sup> Jain D. et al. did a study with mifepristone 25 mg orally daily, for a period 3 months and results showed a reduction in fibroid volume by 44 per cent at the end of treatment.<sup>9</sup> The study by Murphy AA. Et al. showed a comparison between 5 mg, 25 mg and 50 mg dosages and concluded that 25 mg mifepristone is the most effective dose to be used as a medical treatment option to decrease the volume of the uterine fibroid. This was confirmed as the results showed a reduction by 46 per cent in the mean fibroid volume with 25 mg mifepristone. But 10 mg and other low doses of mifepristone have lesser effectiveness in reduction of fibroid volume. It was concluded that an effective dose which causes a clinically significant (50%) reduction in fibroid volume is 25 mg Mifepristone.<sup>10</sup> Seth et al. also did a study with 25mg mifepristone daily for 3 months and resulted in a significant reduction in the volume of fibroid by 53.6 per cent.<sup>11</sup>

In present study, we saw a reduction in the size of the uterine cavity from baseline to 3 months. The mean volume of the uterus at baseline was 105.4cc, which further reduced significantly to 43.9cc at the end of 3 months of treatment.

There was a reduction by 58.3% at 3months of treatment. A study performed by Eisenger et al. concluded that after treatment, the mean uterine volume in group M in which 2.5mg mifepristone was given for 6months, reduction in the uterine volume was by 11%.<sup>12</sup> In another study by Yersumia et al. 10mg mifepristone was given daily vaginally for 3months. The results showed no significant change in the mean uterine volume.

The mean volume of the uterus was 490cc at baseline, which reduced to 432cc at the end of treatment. In follow-up after treatment, the volume of the uterine cavity increased to 573.8cc.<sup>13</sup> Therefore oral mifepristone is much more effective in reducing the uterine volume than vaginal mifepristone.

## CONCLUSION

This study was conducted by prescribing 25mg mifepristone daily for a period of 3 months to see the effect on fibroid and uterine volume. At the end of the study the mean fibroid volume decreased by 77.4% and in 87.5% of the patients the fibroid volume was less than 10cc. Similarly, the uterine volume showed a reduction by 58.3% at the end of treatment.

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