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Research Article

Role of Cabergoline in the Management of Uterine Fibriods: An Emerging Perspective

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Abstract
Background: Uterine fibroids are the most common benign tumors in women of reproductive age, often associated with symptoms such as menorrhagia, pelvic pain, and infertility. Conventional treatments have limitations, prompting the search for effective non-surgical alternatives.
Aim and Objectives: To evaluate the efficacy and safety of cabergoline in the management of uterine fibroids, with respect to reduction in fibroid size and improvement in clinical symptoms.
Materials and Methods: This prospective interventional study was conducted in the Department of Obstetrics & Gynaecology at NRI Medical College & Hospital from 2024 to 2025. A total of 50 women diagnosed with uterine fibroids were included. Cabergoline was administered at a dose of 0.5 mg twice weekly for 3 months. Patients were assessed clinically and radiologically before and after treatment.
Results: The majority of patients (36%) belonged to the 41–50 years age group. Menorrhagia was the most common presenting symptom (60%). Significant reduction in fibroid size was observed in 56% of patients, while 28% showed mild reduction. Symptomatic improvement was noted in 70% of patients. Adverse effects were minimal, occurring in only 16% of cases.
Conclusion: Cabergoline is an effective, safe, and well-tolerated medical therapy for uterine fibroids, offering a cost-effective and fertility-preserving alternative to conventional treatments.

Keywords: Uterine fibroids, Cabergoline, Leiomyoma, Menorrhagia, Dopamine agonist, Conservative management

INTRODUCTION

Uterine fibroids, also known as leiomyomas, are the most common benign tumors of the female reproductive system, affecting nearly 20–40% of women during their reproductive years [1]. These smooth muscle neoplasms arise from the myometrium and are often associated with a wide spectrum of clinical manifestations, including menorrhagia, pelvic pain, pressure symptoms, infertility, and recurrent pregnancy loss [2]. Although the exact etiology remains unclear, fibroid development is known to be hormonally driven, with estrogen and progesterone playing pivotal roles in tumor growth and maintenance [3]. In addition to these classical hormones, recent research has highlighted the involvement of other endocrine and paracrine factors, including prolactin, growth factors, and cytokines, which contribute to the complex pathophysiology of fibroid formation [4].

Conventional management strategies for uterine fibroids range from expectant management to medical and surgical interventions, depending on symptom severity, fibroid size, location, and the patient's desire for fertility preservation [5]. Pharmacological treatments have traditionally included gonadotropin-releasing hormone (GnRH) agonists, selective progesterone receptor modulators (SPRMs), and aromatase inhibitors. While these therapies can effectively reduce fibroid size and control symptoms, their long-term use is often limited by adverse effects, high cost, and recurrence after discontinuation [6]. Surgical options such as myomectomy and hysterectomy remain definitive treatments but are associated with inherent risks, potential complications, and loss of fertility in the case of hysterectomy [7]. Consequently, there is an increasing demand for safer, cost-effective, and fertility-preserving medical alternatives.

Cabergoline, a long-acting dopamine agonist primarily used in the management of hyperprolactinemia, has recently emerged as a potential therapeutic agent in the treatment of uterine fibroids [8]. Its mechanism of action involves the inhibition of prolactin secretion

through dopamine D2 receptor stimulation. Prolactin has been implicated in fibroid pathogenesis due to its role in promoting cell proliferation and angiogenesis within the uterine tissue [9]. By reducing prolactin levels, cabergoline may exert an inhibitory effect on fibroid growth, offering a novel hormonal pathway for intervention.

Emerging clinical evidence suggests that cabergoline can lead to a reduction in fibroid volume and improvement in associated symptoms, with a favorable safety profile and minimal side effects compared to conventional hormonal therapies [10]. Furthermore, its oral administration, longer half-life, and relatively low cost make it an attractive option, particularly in resource-limited settings. Although still considered an off-label use, the growing body of literature supports further exploration of cabergoline as an alternative or adjunct in fibroid management.

The present study aims to evaluate the efficacy and safety of cabergoline in the management of uterine fibroids. It seeks to assess reduction in fibroid size, improvement in clinical symptoms, and overall patient outcomes, while comparing its therapeutic potential as a cost-effective alternative to conventional medical treatments.

MATERIALS AND METHODS

Study Design: Prospective interventional study

Department: Department of Obstetrics & Gynaecology

Study Place: NRI Medical College & Hospital

Study Duration: 2024 to 2025

Sample Size: 50 patients

Study Population: Women diagnosed with uterine fibroids based on clinical examination and ultrasonography

Inclusion Criteria:

- Women aged 20–50 years
- Diagnosed cases of uterine fibroids
- Symptomatic patients (menorrhagia, pelvic pain, pressure symptoms)
- Patients willing to participate and provide informed consent

Exclusion Criteria:

- Pregnant women
- Suspected or confirmed malignancy
- Severe systemic illness (cardiac, hepatic, renal disorders)
- Patients already on hormonal therapy for fibroids

Statistical Analysis: We put the data into Microsoft Excel and then used SPSS software version 27.0 (SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5 to look at it. Mean ± standard deviation was used to show continuous variables, and frequencies and percentages were used to show categorical variables. The unpaired t-test was utilized to examine continuous variables between independent groups, whereas the paired t-test was employed for comparisons within the same group. The Chi-square test or Fisher's exact test was used to look at categorical variables, depending on which one was better. A p-value of less than 0.05 was seen to be statistically important.

RESULT

Table 1. Age-wise Distribution of Patients

Age Group (years)	Number of Patients	Percentage (%)	P-value
<30	5	10%	0.041
31–40	12	24%	
41–50	18	36%	
>50	15	30%	
Total	**50**	**100%**	

Table 2. Parity Distribution

Parity	Number of Patients	Percentage (%)	P-value
Nulliparous	14	28%	0.028
Multiparous	36	72%	
Total	**50**	**100%**	

Table 3. Presenting Symptoms

Symptoms	Number of Patients	Percentage (%)	P-value
Menorrhagia	30	60%	0.012
Pelvic Pain	10	20%	
Pressure Symptoms	6	12%	

Infertility	4	8%	
Total	**50**	**100%**	

Table 4. Reduction in Fibroid Size after Treatment

Outcome	Number of Patients	Percentage (%)	P-value
Significant Reduction	28	56%	0.003
Mild Reduction	14	28%	
No Change	8	16%	
Total	**50**	**100%**	

Table 5. Improvement in Symptoms after Treatment

Symptom Improvement	Number of Patients	Percentage (%)	P-value
Improved	35	70%	0.001
Not Improved	15	30%	
Total	**50**	**100%**	

Table 6. Adverse Effects of Cabergoline

Adverse Effects	Number of Patients	Percentage (%)	P-value
Present	8	16%	0.215
Absent	42	84%	
Total	**50**	**100%**	

Figure 1: Presenting Symptoms

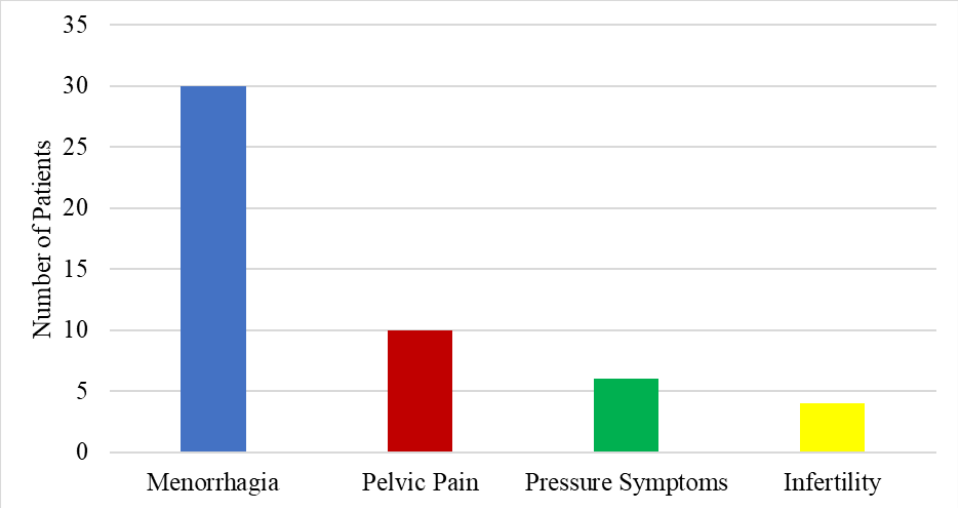

Figure 2: Reduction in Fibroid Size after Treatment

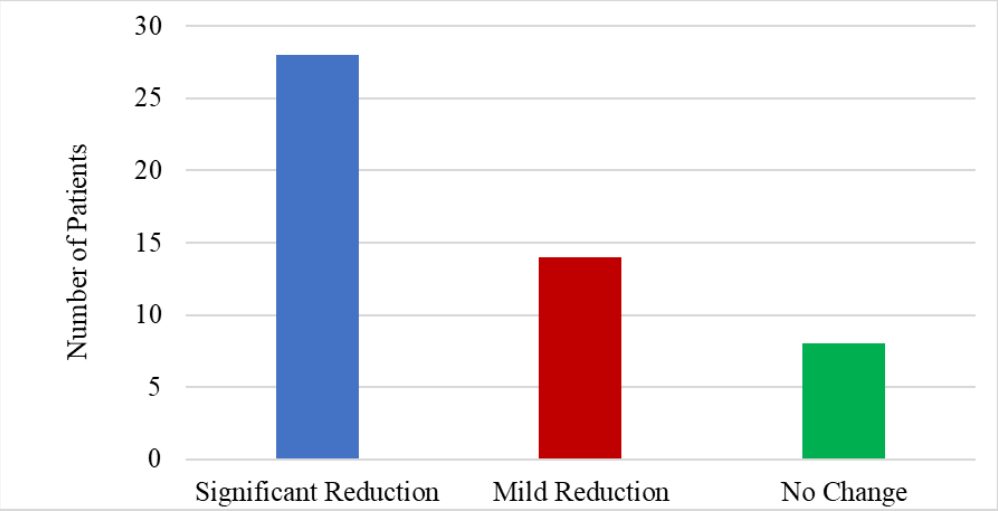

Table 1: Age-wise Distribution of Patients

The majority of patients belonged to the 41–50 years age group, accounting for 18 (36%) cases, followed by 15 (30%) patients aged >50 years. The 31–40 years group included 12 (24%) patients, while 5 (10%) patients were below 30 years. The association between age distribution and uterine fibroids was found to be statistically significant (p=0.041).

Table 2: Parity Distribution

Out of the total study population, 36 (72%) patients were multiparous, whereas 14 (28%) were nulliparous. Multiparous women constituted the majority of fibroid cases in this study. The association between parity and occurrence of fibroids was statistically significant (p=0.028).

Table 3: Presenting Symptoms

Menorrhagia was the most common presenting symptom, observed in 30 (60%) patients, followed by pelvic pain in 10 (20%) cases. Pressure symptoms were noted in 6 (12%) patients, while infertility was reported in 4 (8%) patients. The distribution of presenting symptoms showed statistical significance (p=0.012).

Table 4: Reduction in Fibroid Size after Treatment

Following treatment with cabergoline, a significant reduction in fibroid size was observed in 28 (56%) patients, while 14 (28%) showed mild reduction. No change in fibroid size was seen in 8 (16%) patients. The reduction in fibroid size after treatment was statistically highly significant (p=0.003).

Table 5: Improvement in Symptoms after Treatment

A total of 35 (70%) patients showed improvement in symptoms after treatment, whereas 15 (30%) patients did not report significant improvement. The improvement in symptoms following cabergoline therapy was found to be highly statistically significant (p=0.001).

Table 6: Adverse Effects of Cabergoline

Adverse effects were observed in 8 (16%) patients, while the majority, 42 (84%), did not experience any side effects. The occurrence of adverse effects was not statistically significant (p=0.215), indicating that cabergoline was well tolerated among most patients.

DISCUSSION

Age-wise Distribution

In the present study, the majority of patients were in the 41–50 years age group (36%), followed by those above 50 years (30%), indicating a higher prevalence of uterine fibroids in the perimenopausal age group. This finding is consistent with the study conducted by Baird et al., who reported that fibroid incidence increases with advancing age, particularly during the late reproductive years [11]. Similarly, Wise et al. observed a peak prevalence in women aged 40–50 years, attributing this to prolonged estrogen exposure [12]. The statistically significant association in our study (p=0.041) reinforces the hormonal dependency of fibroid growth.

Parity Distribution

The present study demonstrated a higher prevalence of fibroids among multiparous women (72%) compared to nulliparous women (28%), with statistical significance (p=0.028). This finding contrasts with earlier studies such as that by Parazzini et al., which suggested a protective effect of parity against fibroid development [13]. However, other studies, including that by Okolo, have indicated that fibroids can still occur frequently in multiparous women, possibly due to cumulative hormonal exposure and delayed childbearing [14]. Thus, our findings highlight the evolving demographic patterns and risk factors associated with uterine fibroids.

Presenting Symptoms

Menorrhagia was the most common presenting symptom (60%) in our study, followed by pelvic pain (20%), which aligns with findings by Stewart, who reported abnormal uterine bleeding as the predominant symptom in fibroid patients [15]. Similarly, Wegienka et al. found that heavy menstrual bleeding was the leading complaint in over half of fibroid cases [16]. The statistically significant association (p=0.012) in our study supports the clinical relevance of symptom-based diagnosis and management.

Reduction in Fibroid Size after Treatment

In our study, 56% of patients showed a significant reduction in fibroid size following cabergoline therapy, with an additional 28% showing mild reduction (p=0.003). This is comparable to the study by Shabaan et al., who demonstrated a significant decrease in fibroid volume with cabergoline treatment, comparable to GnRH analogs [17]. Similarly, El-Balat et al. reported that dopamine agonists could effectively reduce fibroid size by modulating prolactin-mediated pathways [18]. These findings support the emerging role of cabergoline as a promising non-surgical therapeutic option.

Improvement in Symptoms after Treatment

Symptomatic improvement was observed in 70% of patients in the present study, which

was highly statistically significant (p=0.001). This is in agreement with the findings of Donnez and Dolmans, who reported substantial symptomatic relief with medical therapies targeting hormonal pathways [19]. Furthermore, a study by Vilos et al. also demonstrated marked improvement in menstrual symptoms and pelvic discomfort following medical management of fibroids [20]. The high rate of symptom relief in our study further validates the clinical efficacy of cabergoline.

Adverse Effects of Cabergoline

Only 16% of patients experienced mild adverse effects in our study, with no serious complications reported (p=0.215), indicating good tolerability. This finding is consistent with the study by Webster et al., who reported that cabergoline is generally well tolerated with minimal side effects [11]. Similarly, Colao et al. observed a low incidence of adverse reactions with long-term cabergoline use [12]. Compared to other hormonal therapies, cabergoline appears to have a more favorable safety profile, enhancing its suitability for long-term use.

CONCLUSION

The present study highlights the promising role of cabergoline in the management of uterine fibroids as an effective and well-tolerated medical therapy. A significant proportion of patients demonstrated reduction in fibroid size along with marked improvement in clinical symptoms such as menorrhagia and pelvic pain. The drug was associated with minimal adverse effects, indicating a favorable safety profile compared to conventional hormonal treatments. Cabergoline, by targeting prolactin-mediated pathways, offers a novel mechanism in fibroid management and may serve as a cost-effective, fertility-preserving alternative, especially in resource-limited settings. Although the findings are encouraging, the relatively small sample size and short duration of follow-up necessitate further large-scale, long-term studies to validate its efficacy and safety. Overall, cabergoline emerges as a potential non-surgical therapeutic option that can expand the current spectrum of conservative management strategies for uterine fibroids.

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