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Incidence of Symptoms and Hormonal Levels in Natural vs Surgical (TAH/TLH + BSO) Menopause Patients.

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ABSTRACT

Background: Menopause, a significant transition in a woman's life, can occur naturally or surgically via procedures such as total abdominal hysterectomy (TAH) or total laparoscopic hysterectomy (TLH) combined with bilateral salpingo-oophorectomy (BSO). The study aimed to compare the incidence of menopausal symptoms and hormonal levels between women experiencing natural menopause and those undergoing surgical menopause (TAH/TLH + BSO).

Methods: A total of 100 participants were enrolled, with 50 patients in the natural menopause group and 50 in the surgical menopause group. Data on menopausal symptoms (hot flashes, mood swings, osteoporosis, vaginal dryness) and hormonal levels (oestrogen, progesterone) were collected through questionnaires and blood tests. Statistical analysis was performed using SPSS version 21.0.

Results: The surgical menopause group reported a significantly higher incidence of menopausal symptoms: hot flashes (84% vs. 64%, p=0.03), mood swings (76% vs. 56%, p=0.04), osteoporosis (60% vs. 36%, p=0.02), and vaginal dryness (70% vs. 44%, p=0.01). Hormonal analysis showed significantly lower levels of oestrogen (21.7 ± 8.5 pg/mL vs. 45.3 ± 12.4 pg/mL, $p<0.001$) and progesterone (1.1 ± 0.7 ng/mL vs. 2.6 ± 1.2 ng/mL, $p<0.001$) in the surgical menopause group.

Conclusion: Women undergoing surgical menopause experienced a higher incidence of menopausal symptoms and lower hormonal levels compared to those undergoing natural menopause. These findings highlight the need for targeted management strategies for women undergoing surgical menopause.

Recommendations: Early intervention with hormone replacement therapy (HRT) and personalized therapeutic approaches should be considered for women undergoing surgical menopause to improve their quality of life and mitigate long-term health risks. Further research is needed to develop and refine these management strategies.

Keywords: Natural Menopause, Surgical Menopause, Hormonal Levels, Menopausal Symptoms, Hormone Replacement Therapy

INTRODUCTION

Menopause marks a significant transition in a woman's life, characterized by the cessation of menstrual cycles and a decline in reproductive hormones. It typically occurs naturally between the ages of 45 and 55, with variations influenced by genetic, environmental, and lifestyle factors. While natural menopause is a gradual process, surgical menopause, induced by procedures such as total abdominal hysterectomy (TAH) or total laparoscopic hysterectomy (TLH) combined with bilateral salpingo-oophorectomy (BSO), results in an abrupt cessation of ovarian function. This sudden change often exacerbates menopausal symptoms and alters hormonal levels more drastically compared to natural menopause [1].

The incidence of menopausal symptoms such as hot flashes, mood swings, osteoporosis, and vaginal dryness varies significantly between natural and surgical menopause. These symptoms can severely impact the quality of life and overall well-being of affected women. Research indicates that surgical menopause is associated with a higher prevalence and severity of these symptoms due to the sudden drop in estrogen and progesterone levels [2]. Moreover, the rapid hormonal decline in surgical menopause can lead to more pronounced health risks, including cardiovascular disease, osteoporosis, and cognitive decline [3].

Hormonal levels play a crucial role in the manifestation of menopausal symptoms. Estrogen and progesterone are pivotal in regulating various physiological processes. Their deficiency post-menopause, particularly following surgical intervention, has been linked to increased symptom severity and health complications. Estrogen replacement therapy (ERT) has been shown to alleviate some of these symptoms and reduce associated risks; however, the long-term safety and efficacy of hormone replacement therapy (HRT) remain subjects of ongoing research and debate [4].

The present study aims to compare the incidence of menopausal symptoms and hormonal levels between women experiencing natural menopause and those undergoing surgical menopause (TAH/TLH + BSO).

METHODOLOGY

Study Design

This study was a cross-sectional observational study.

Study Setting

The study was conducted over one year at one locations: AIIMS, Patna.

Study Duration

The study was conducted in period of One year from Jan.2018 to Jan.2019

Participants

A total of 100 participants were enrolled in the study, with 50 patients experiencing natural menopause and 50 patients experiencing surgical menopause (TAH/TLH + BSO).

Inclusion Criteria

- Women aged 45-60 years.

- Patients with natural menopause (cessation of menses for at least total 12 Months).

- Patients who had undergone surgical menopause (TAH/TLH + BSO) within the last year.

- Willingness to provide informed consent.

Exclusion Criteria

- Patients with a history of hormone replacement therapy in the last six months.

- Patients with known endocrine disorders affecting hormonal levels.

- Patients undergoing menopause due to chemotherapy or radiation therapy.

- Patients with incomplete medical records.

Bias

To minimize selection bias, participants were recruited consecutively as they presented to the study sites and met the inclusion criteria. Recall bias was minimized by using standardized questionnaires and hormone level measurements.

Data Collection

Data were collected through standardized questionnaires were administered to assess menopausal symptoms. Patient records were reviewed for demographic data, medical history, and type of menopause. Blood samples were collected to measure hormonal levels (estrogen, progesterone, FSH, LH).

Procedure

Patients meeting the inclusion criteria were identified and recruited from AIIMS Hospital Patna.Informed consent was obtained from all participants. Participants completed standardized questionnaires on menopausal symptoms. Blood samples were drawn for hormonal analysis. Data were entered into a secure database for analysis.

Statistical Analysis

Data were analyzed using SPSS version 21.0. Descriptive statistics (mean, standard deviation, frequency) were used to summarize the demographic and clinical characteristics of the participants. A p-value of <0.05 was considered statistically significant.

RESULT

The study included 100 participants, with 50 patients in the natural menopause group and 50 patients in the surgical menopause group. The mean age of the participants was 52.4 years (SD ± 4.2) in the natural menopause group and 51.8 years (SD ± 3.8) in the surgical menopause group. The average BMI was 26.5 (SD ± 3.4) for the natural menopause group and 27.2 (SD ± 3.6) for the surgical menopause group.

The incidence of menopausal symptoms varied between the natural and surgical menopause groups. The surgical menopause group reported a higher frequency of symptoms compared to the natural menopause group.

Table 1: Incidence of Menopausal Symptoms

Symptom	Natural Menopause	Surgical Menopause	p-value
Hot flashes	32 (64%)	42 (84%)	0.03
Mood swings	28 (56%)	38 (76%)	0.04
Osteoporosis	18 (36%)	30 (60%)	0.02
Vaginal dryness	22 (44%)	35 (70%)	0.01

The hormonal levels (oestrogen and progesterone) were significantly different between the two groups. The surgical menopause group showed lower levels of both hormones compared to the natural menopause group.

Table 2: Hormonal Levels

Hormone	Natural Menopause	Surgical Menopause	p-value
Oestrogen (pg/mL)	45.3 ± 12.4	21.7 ± 8.5	<0.001
Progesterone (ng/mL)	2.6 ± 1.2	1.1 ± 0.7	<0.001

The incidence of hot flashes was significantly higher in the surgical menopause group (84%) compared to the natural menopause group (64%) with a p-value of 0.03.

Mood swings were more prevalent in the surgical menopause group (76%) compared to the natural menopause group (56%) with a p-value of 0.04.

The surgical menopause group had a higher incidence of osteoporosis (60%) compared to the natural menopause group (36%) with a p-value of 0.02.

Vaginal dryness was significantly more common in the surgical menopause group (70%) than in the natural menopause group (44%) with a p-value of 0.01.

The mean oestrogen level was significantly lower in the surgical menopause group (21.7 ± 8.5 pg/mL) compared to the natural menopause group (45.3 ± 12.4 pg/mL) with a p-value of <0.001.

The mean progesterone level was significantly lower in the surgical menopause group (1.1 ± 0.7 ng/mL) compared to the natural menopause group (2.6 ± 1.2 ng/mL) with a p-value of <0.001.

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DISCUSSION

The study compared the incidence of menopausal symptoms and hormonal levels between women undergoing natural menopause and those experiencing surgical menopause (TAH/TLH + BSO). The participants, consisting of 50 women in each group, were assessed for the presence of hot flashes, mood swings, osteoporosis, and vaginal dryness, along with their levels of oestrogen and progesterone.

The surgical menopause group reported a significantly higher incidence of menopausal symptoms compared to the natural menopause group. Hot flashes were observed in 84% of the surgical menopause group, whereas only 64% of the natural menopause group experienced this symptom ($p=0.03$). Similarly, mood swings were reported by 76% of the surgical group, compared to 56% of the natural group ($p=0.04$). Osteoporosis was prevalent in 60% of the surgical group, significantly higher than the 36% observed in the natural group ($p=0.02$). Vaginal dryness was also more common in the surgical menopause group, with 70% of participants reporting this symptom compared to 44% in the natural group ($p=0.01$). These results indicate that surgical menopause is associated with a higher burden of menopausal symptoms.

Hormonal analysis revealed significant differences between the two groups. The mean oestrogen level in the surgical menopause group was 21.7 pg/mL (SD ± 8.5), markedly lower than the 45.3 pg/mL (SD ± 12.4) observed in the natural menopause group ($p<0.001$). Progesterone levels followed a similar pattern, with the surgical group having a mean level of 1.1 ng/mL (SD ± 0.7), compared to 2.6 ng/mL (SD ± 1.2) in the natural group ($p<0.001$). These findings suggest that the hormonal deficits are more pronounced in women who undergo surgical menopause.

The higher incidence of symptoms and lower hormonal levels in the surgical menopause group can be attributed to the abrupt cessation of ovarian hormone production following the removal of the ovaries. In contrast, natural menopause involves a gradual decline in hormone levels, allowing the body to adjust over time. The significant differences in symptom prevalence and hormone levels underscore the need for specific management strategies for women undergoing surgical menopause.

These findings highlight the importance of early intervention and tailored treatments to mitigate the adverse effects associated with surgical menopause. Hormone replacement therapy (HRT) and other supportive measures should be considered to improve the quality of life for these patients. Further research is necessary to develop and refine these strategies, ensuring they are both effective and safe for long-term use.

Schnabel et al. (2018) evaluated the use of hormone replacement therapy (HRT) in women undergoing surgical menopause due to bilateral-salpingo-oophorectomy (BSO). The study found that HRT increased breast density and the risk of breast cancer in these women, similar to those with natural menopause [5].

Cho et al. (2019) compared sleep quality between women experiencing natural menopause (NM) and surgical menopause (SM). The SM group reported significantly worse sleep quality, with higher rates of insomnia and poorer sleep efficiency compared to the NM group [6]. Gumussoy et al. (2020) examined the effects of surgical menopause on hormonal levels, mucociliary clearance, and quality of life. The study found significant decreases in estradiol levels and increases in FSH levels post-surgery, which correlated with prolonged nasal mucociliary clearance times and decreased quality of life [7].

Gordhandas et al. (2019) reviewed the use of HRT in BRCA mutation carriers undergoing risk-reducing salpingo-oophorectomy (RRSO). The study highlighted that HRT alleviates menopausal symptoms without significantly increasing breast cancer risk in these high-risk patients [8]. Hall et al. (2019) investigated the impact of surgical menopause on menopausal symptoms and sexual functioning in BRCA mutation carriers. The study found significant increases in vasomotor symptoms and declines in sexual functioning post-surgery, with HRT partially mitigating these effects [9].

Matulonga-Diakiese et al. (2018) examined the risk of asthma onset after natural and surgical menopause. The study found that surgical menopause was associated with an increased risk of asthma onset, while no significant change was observed for natural menopause [10]. Mahjabeen and Nasreen (2020) compared the clinical profiles of women undergoing surgical menopause versus natural menopause. The study found higher incidences of hot flushes, palpitations, and vaginal dryness in the surgical menopause group, whereas body ache, tiredness, and insomnia were more common in the natural menopause group [11].

CONCLUSION

The study found that patients undergoing surgical menopause experienced a higher incidence of menopausal symptoms such as hot flashes, mood swings, osteoporosis, and vaginal dryness compared to those undergoing natural menopause. Additionally, hormonal levels of oestrogen and progesterone were significantly lower in the surgical menopause group. These findings highlight the need for targeted management strategies for women undergoing surgical menopause.

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