

International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622
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www.gynaecologyjournal.com
2020; 4(3): 26-29
Received: 19-03-2020
Accepted: 21-04-2020

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A prospective study of association of body menstrual index with menstrual disturbances between 20-40 years

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DOI: <https://doi.org/10.33545/gynae.2020.v4.i3a.571>

Abstract

Introduction: Any uterine bleeding outside the normal volume, duration, regularity or frequency is considered abnormal uterine Bleeding. Menorrhagia / hypermenorrhea is a pattern of AUB- defined as cyclic bleeding at normal intervals, which is excessive in amount or duration. BMI is a simple index of weight for height. It is defined as a person's weight in kilograms divided by the square of height in meters and expressed in kg/m^2 ^[1].

Aims and Objectives: To establish the association between body mass index and menstrual disturbances between age group 20-40yrs.

Materials And Methods: Consent of patients taken. A prospective study was conducted in BMCRI over a period of 6 months and 100 patients were included in the study. Patients with age ranging from 20-40yrs, coming to gynaec OPD with presenting history of menstrual irregularities were included. Patients with normal cycles, pregnancy were excluded. Data regarding age, marital status, parity, symptoms, menstrual history, obstetric history, examination, co morbidities, investigation findings, associated pathology and treatment modality were noted. They were tabulated and analysed.

Conclusion: BMI plays a very important role in menstrual cycle regulation. Life style modifications and nutritional counselling could decrease the incidence of menstrual irregularities. Healthy eating habits and maintaining optimal BMI improves menstrual health.

Keywords: Body mass index, menstrual cycle, menorrhagia, AUB, obesity

Introduction

Any uterine bleeding outside the normal volume, duration, regularity or frequency is considered abnormal uterine Bleeding. Menorrhagia / hypermenorrhea is a pattern of AUB- defined as cyclic bleeding at normal intervals, which is excessive in amount or duration. BMI is a simple index of weight for height. It is defined as a person's weight in kilograms divided by the square of height in meters and expressed in kg/m^2 ^[1]

1. BMI classification ^[1]

- < 18.5 is under weight
- 18.5-24.9 normal weight
- 25- 29.9 over weight
- 30-39.9 obesity
- >40 morbid obesity

2. Pathophysiology of menorrhagia in high BMI index ^[2]

Prolonged release of unopposed oestrogen leads to proliferation of endometrium leading to simple hyperplasia which intrun leads to complex hyperplsia without atypia. Complex hyperplsia with atypia leads untimatly to adenocarcinoma.

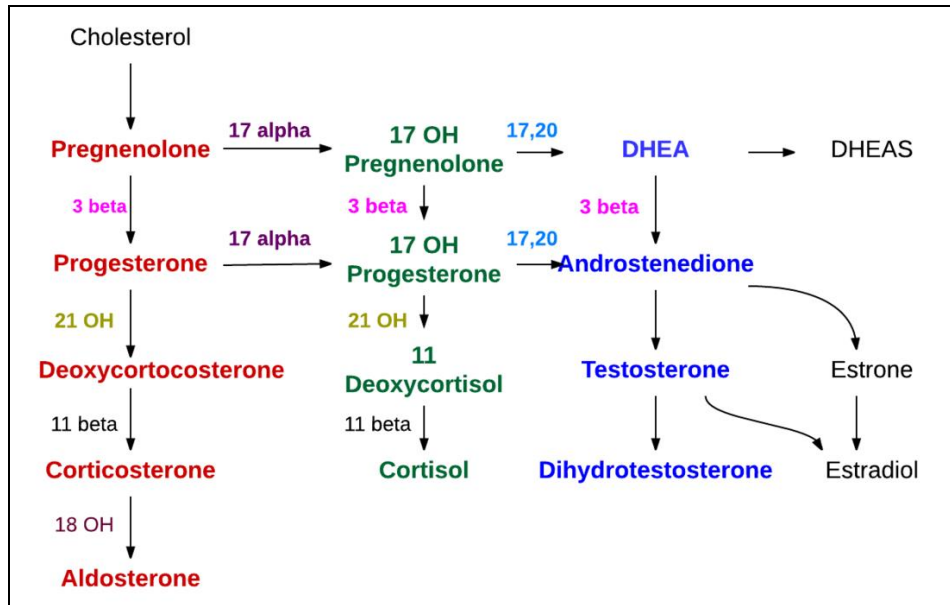
Aims and Objectives

To establish the association between body mass index and menstrual disturbances between age group 20-40yrs.

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Flowchart of hormone production

Materials and Methods

1. Study Design- Prospective Study
2. Study Setting- Bmcri
3. Sample Size- 100 Patients
4. Duration Of Study- 6months
5. Consent of patients taken. A prospective study was conducted in BMCRI over a period of 6 months and 100 patients were included in the study. Patients with age ranging from 20-40yrs, coming to gynaec OPD with presenting history of menstrual irregularities were included
6. Patients with normal cycles, pregnancy were excluded.
7. Data regarding age, marital status, parity, symptoms, menstrual history, obstetric history, examination, co morbidities, investigation findings, associated pathology and treatment modality were noted.
8. They were tabulated and analysed

Results

Age Distribution

20-30yrs	32pts
31-40yrs	68pts

Majority of patients belong to the age group of 31-40yrs- 68 patients and the rest belong to the age group 20-30yrs.

Parity

Multi parous	76pts
Nulliparous	24pts

In our study majority of our patients were multiparous women. 24 patients were nulliparous

Socio Economic Status

Upper	10pts
Middle	21pts
Lower	69pts

Lower socio economic status had 69 patients in the group. 21 patients in middle and 10 patients in upper socio economic status

Body Mass Index

18.5 (underweight)	9pts
18.5-24.9 (normal weight)	23pts
25- 29.9 (over weight)	64pts
30-39.9 (obesity)	4pts
>40 (morbid obesity)	NIL

Over weight category had the maximum patients of 64, with 23 normal weight patients. 9 patients were under weight. Our study had no patients who were morbidly obese

Presenting Symptoms

Menstrual Disturbances

Heavy menstrual bleeding	6pts
Increased frequency of cycles	10pts
Intermenstrual bleeding	3pts
Continuous bleeding PV	4pts
Decreased frequency with menorrhagia	3pts
Post menopausal bleeding	1pts
Amenorrhoea f/b menorrhagia	2pts
Post coital bleeding	1pts
Spotting PV	1pts

Pain

Congestive dysmenorrhea	3pts
Spasmodic dysmenorrhea	4pts
Continuous pain	6pts
Dyspareunia	4pts

Menstrual disturbances and pain abdomen were the two symptoms as presenting complaints. In menstrual disturbances, increased frequency of cycles was the highest with 10 patients. Next was heavy menstrual bleed with 6 patients. Decreased frequency with menorrhagia, intermenstrual bleed and continuous bleed had the same number of patient distribution of 3. Less common symptom was spotting pv, amenorrhoea followed by bleeding, post coital bleed and post menopausal bleed.

In pain abdomen, continuous pain was the most common with dyspareunia and dysmenorrhea

Pre Menstrual Syndrome

Back ache	24pts
Abdominal pain	30pts
Anxiety	3pts
Nervousness	5pts
Depression	2pts

Abdominal pain was observed by 30 patients with back ache also being the most common symptom. Other uncommon symptoms were nervousness, depression and anxiety

Age of Menarche: Majority of patients had menarche after 12yrs

Duration of Symptoms

<3 months	28pts
3-6 months	30pts
7m-1yr	14pts
1yr-2yr	22pts
>2yr	6pts

28 patients had recent history of onset of symptoms from 3mths. Maximum patients had symptoms from one year. Very few of them had from 2 yrs.

Anaemia

Mild anaemia	15pts
Moderate anaemia	13pts
Severe anaemia	10pts

Out of 100 cases anaemia was present in 38 patients. 10 patients having severe anaemia who had blood transfused. Mild and moderate anaemia were treated with multiple doses of iron sucrose injection.

D & C

Done for 54 patients out of 100 patients.

Endometrium report

Endometrium	
Secretory	30
proliferative	21
Hyperplastic	3

Majority of the endometrium reports were normal showing secretory and proliferative changes. Hyperplastic endometrium was seen in 3 patients.

Cervix

cx fibroid	2pts
cx polyp	2pts
chr non -specific crevicitis	13pts
polypoidal cx	1pts
normal cx	36pts

Normal cervix was found in most of the patients. Cervical fibroid, polyp was seen in few patients

Ultrasound Imaging

Normal uterus	42
Bulky uterus	16
Fibroid	22
Adenomyosis	20

58 patients had normal uterus whereas 42 patients had fibroid or adenomyosis as the USG finding

Relation Between BMI and Menstrual Disturbances

BMI	Patients with menstrual disturbances
Normal BMI	32
High BMI	68

Patients with high BMI had high rate of menstrual disturbances. Whereas 32 patients with normal BMI also had menstrual complaints

Treatment Given

Therapeutic D & C	9
OCP's	22
Symptomatic treatment- anaemia correction, tranexamic acid with mefenamic acid	46
IUS- levonorgestrel inserted	5
Hysterectomy	18

Symptomatic treatment was given to majority of the cases. OCP's was also given to 22 patients as treatment. 18 patients required surgical intervention.

Discussion

1. Out of 100 patients 68% belong to 31-40 yrs age group. One in 20 women visit doctors with complains of menstrual disturbances belonging to this age group. Similar association was seen in G. Warrilow *et al.* study [3].
2. Alpana *et al.* study stated that Incidence of menstrual disturbances increases with parity as seen even in the present study showing 76% parous women having menstrual disturbances [4].
3. As found in our study, menstrual disturbances are commoner among upper class due to obesity and lower class due to malnutrition. This correlation was found in Hawaii *et al.* study [5].
4. Increase in BMI is a risk factor for menstrual disturbances due to the excess production of estrogen. 68% of patients belongs to obese group. Similar correlation was observed in Hamdy *et al.* study [6].
5. Commonest presenting complaint was polymenorrhagia in our study. This result was also found in Moghal *et al.* study [7].
6. There was a positive correlation noted between PMS and High BMI as also seen in Lu Z *et al.* study [8].
7. Fibroid was the most common associated pathology (38%) picked up by ultrasound. Vercillin *et al.*, study also had the same pathology as commonest [9].
8. D & C is done for patients having acyclical bleeding / if medical therapy fails, hence only 54% had the procedure done. Similar management was observed in Kate D C *et al.* study [10].

Conclusion

1. BMI plays a very important role in menstrual cycle regulation
2. Life style modifications and nutritional counselling could decrease the incidence of menstrual irregularities
3. Healthy eating habits and maintaining optimal BMI improves menstrual health

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