PROSPECTIVE OBSERVATIONAL STUDY OF ADOLESCENT GYNAECOLOGICAL PROBLEMS IN A TERTIARY CARE CENTRE

Dissertation submitted to

THE TAMIL NADU DR. M. G. R MEDICAL UNIVERSITY

In partial fulfilment of the regulation for

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M.S. BRANCH II

OBSTETRICS AND GYNAECOLOGY

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THANJAVUR MEDICAL COLLEGE

THANJAVUR- 613004

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MAY 2022

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This is to certify that the dissertation titled "**PROSPECTIVE OBSERVATIONAL STUDY OF ADOLESCENT GYNAECOLOGICAL PROBLEMS IN A TERTIARY CARE CENTRE** is a bonafide work done by **Dr. R.PRABHA ,** Post graduate student, Department of Obstetrics and Gynaecology,**Thanjavur Medical college, Thanjavur – 04,** during the period **JANUARY 2020 TO DECEMBER 2020** in partial fulfillment of rules and regulations of the **Tamilnadu Dr. M.G.R Medical University,** for the award of **M.S. Degree Branch II (Obstetrics and Gynaecology)** examination to be held in **May 2022.**

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This to certify that the protocol submitted by the principal investigator of the above mentioned study has been reviewed as per standard ethical guidelines and the same has been **APPROVED** by the members of the Institutional ethical committee at its meeting held on 13/01/2020.

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This is to certify that this dissertation work titled **"PROSPECTIVE OBSERVATIONAL STUDY OF ADOLESCENT GYNAECOLOGICAL PROBLEMS IN A TERTIARY CARE CENTRE"** of the candidate **Dr. R.PRABHA** with Registration Number 221916210 for the award of M.S. degree in the branch of Obstetrics & Gynaecology. I personally verified the urkund.com website for the purpose of plagiarism check. I found that uploaded thesis file contains from introduction to conclusion pages and result shows seven percentage of plagiarism in the dissertation.

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DECLARATION

I solemnly declare that this dissertation title **"PROSPECTIVE OBSERVATIONAL STUDY OF ADOLESCENT GYNAECOLOGICAL PROBLEMS IN A TERTIARY CARE CENTRE"** was done by me at **Department of Obstetrics and Gynaecology, Thanjavur Medical College, Thanjavur,** during year 2019-2022 under the guidance and supervision of **Prof. Dr. R.RAJARAJESWARI, MD., DGO., DNB.** This dissertation is submitted to **The Tamil Nadu Dr. M.G.R. Medical University, Chennai** in partial fulfillment of the University regulations for the award of **M.S. BRANCH II (Obstetrics and Gynaecology).**

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CONTENTS

INTRODUCTION

Adolescence is the phase of life between the childhood and adulthood of the life, from ages 10 to 19. It is an unique stage of human development and an important time for laying the foundations of good health. Adolescents experience rapid changes in their physical, psychosocial and cognitive growth. Despite being thought of as a healthy stage of life, there is significant illness and injury in the adolescent years. Much of this is preventable or treatable. During this phase, adolescents establish patterns of behaviour – for instance, related to diet, physical activity, substance use, and sexual activity – that can protect their health and the health of others around them, or put their health at risk now and in the future The adolescent population in a country constitute a critical segment as the future demographic, social, economic and political developments of the country depend on them. The total estimated population of the world in 2010 is 6.91 billion(1). The number of persons in the age 10-19 years (defined as Adolescents) is 1.19 billion.

In India, adolescent population (10-19) is 253.2 million constituting 20.9 percent of total population of the country(as per 2011 census). India, which is the second most populous country in the world has a higher number of adolescents than China.

Though the total population of India grew at 1.5 per cent per annum during this Period, the adolescent population recorded corresponding growth of 0.7 per cent.

Percentage of Adolescent Population to Total Population in Tamilnadu -17.2%.

Sex ratio among adolescent population in tamilnadu is 937.

Adolescence period in girls has been recognised as a special phase of their life. It requires special attention. This transition period makes them vulnerable to various problems e.g., general, reproductive health , sexually related and psychological problems.

This period in girl's life is the preparation for their safe motherhood. The health of these girls not only influences their own health but, also that of the future generation. Reproductive health problems of adolescent girls has its own space in the spectrum of gynaecological problems of all ages.

This is because of its association with emotional and psychological factors and its unique presentation.

Adolescent health determines the health of the nation.

Although, FOGSI dedicated the year 1999 as the year for adolescent health and the need for adolescent health clinics. It is a sub specialised area in the field of gynaecology.

With this preview, my thesis entitled 'PROSPECTIVE OBSERVATIONAL STUDY OF ADOLESCENT GYNAECOLOGICAL PROBLEMS IN A TERTIARY CARE CENTRE',

I have made an attempt to analyse various gynaecological problems and factors related to development and progression of these problems in adlolescent females attending gyanecological OPD and emergency casualty in Raja Mirasudarar Government Medical College Hospital, Thanjavur

AIM AND OBJECTIVES

PRIMARY OBJECTIVE : To assess the gynaecological problems for adolescent girls coming to GRMH

SECONDARY OBJECTIVE: To study the various modes of management of gynaecological disorders among adolescent girls.

REVIEW OF LITERATURE

In most societies throughout the history, puberty has been a time of celebration. The changes accompanying the puberty announce the transition of life from childhood to adulthood and the development of fertility. Puberty is the process of psychosocial,cognitive and biologic maturation. Though the development of secondary sexual characters are the most visible manifestations regarding the onset of puberty, changes in body composition and cognition development are no less significant. Puberty can be a difficult transition time for many adolescents, even when the progression is normal, and presents greater challenges when its onset is delayed or premature. The recent trend towards an earlier pubertal maturation and notably earlier sexuality and the problem of teenage pregnancy, makes it more important to understand physiology of normal puberty.

SENTINEL EVENTS OF PUBERTY:

Puberty is the phase of transition from childhood to adulthood. The timing, pace and sequence of pubertal maturation vary among individuals,but the sentinel events of puberty generally follow a pattern.

1. **Adrenarche:**

The activation of adrenal androgen secretion that begins before puberty

2. **pubarche**:

The appearance of pubic hair

3. **Gonadarche** :

The activation of the hypothalamic-pituitary-gonadal axis, which facilitates the pubertal growth spurt

4.**Thelarche**:

The appearance of breast tissue

5.Menarche:

The onset of menses.

The Timing of Puberty

The onset of puberty and menarche is influenced by several Factors like genetics, overall health, social environment, and environmental Exposure.

- Children with a family history of early puberty are more prone to have an early puberty themselves, age at menarche correlates relatively well between sisters and between mothers and daughters(2)
- Children who live at lower altitudes, and in urban areas and closer to the equator obese children generally begin puberty earlier than those who live in northern altitudes, at higher elevations, and in rural areas and those of normal weight (3)

- Pediatric Research in Office Settings (PROS) network at 1997 conducted a study about the timing of pubertal development found that the earliest signs of puberty were occurring at ages significantly younger than in the past, with striking racial differences,.

Stages of Pubertal Development

Puberty includes a series of predictable events that vary in sequence,timing and pace.

The first sign of puberty in most adolescent girls is an acceleration of growth, followed by breast budding (thelarche), the appearance of pubic hair (pubarche), and, finally, the onset of menses (menarche). All these phases are interchangeable.

The staging system used to describe the physical changes of puberty in girls were first described by Marshall and Tanner in 1969 (4).

MARSHALL AND TANNER STAGING:

Tanner staging describe the development of secondary sexual characters, including breast development and pubic hair growth.

There are five Tanner stages of breast and pubic hair development in girls, with stage 1 representing the prepubertal stage and stage 5 representing adult development.

Breast development follows a sequence of events. Breast budding

(Tanner stage 2) is distinguished by the enlargement and widening of areolae. The breast then enlarges and becomes elevated beyond the areolae (Tanner stage 3).

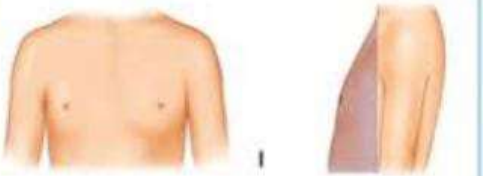
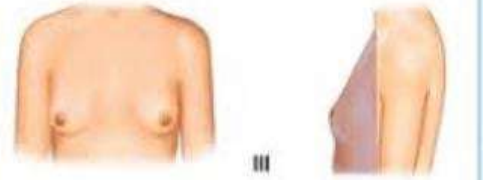
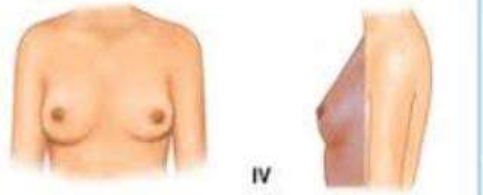
The breast then enlarges further and the areolae and nipple form the secondary mounds (Tanner stage 4), just before the breast achieves the adult contour (Tanner stage 5).

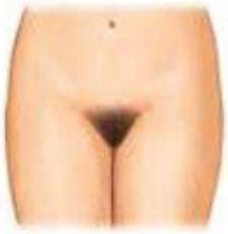
In the majority of adolescent girls, pubarche closely follows thelarche, but in substantial minority, the sequence is reversed and pubarche precedes thelarche. In either cases, the two are closely linked and progresses parallely. Pubarche (Tanner stage 2) is distinguished by emergence of a small amount of long, straight hair on the labia majora. The hair then becomes curly and coarse and extends outwardly (Tanner stage 3). The hair then extends further to cover the labia (Tanner stage 4) before assuming an adult pattern with extension into the medial aspect of thigh (Tanner stage 5).

Menarche occurs on average of 2.6 years after the onset of puberty and after the peak growth has passed. On an average, pubertal sequence of the accelerated growth, thelarche, pubarche, and menarche requires around 4.5 years (range, 1–6 years). The relation between menarche and growth spurt is elatively fixed. After menarche, growth slows down and generally does not increase more than around 6 cm (2.4 inches).

The menses immediately following menarche are usually anovulatory, irregular, and sometimes heavy. Anovulatory cycles frequently persist for 12–18 months and are not so uncommon up to 4 years after menarche. However, the menstrual frequency increases rapidly over the first year after menarche; 65% of adolescent girls reportedly have 10 or more menstrual cycles per year at the end of first postmenarcheal year and 90% after 3 years. The hallmark of maturation of hypothalamic-pituitary-ovarian axis is the development of oestrogen positive feedback, which stimulates midcycle LH surge and ovulation. In general, ovulatory cycles become progressively increase in frequency. The time needed to establish ovulatory cycles relates to the age at menarche.

IMAGE – TANNER STAGING

Tanner Stage1	Preadolescent	Only papilla is elevated	 I
Tanner Stage 2	Breast budding	Enlargement and widening of the areola and mound-like elevation of the breast and papilla	 II
Tanner Stage 3		Further enlargement of breast and areola with NO separation of contours	 III
Tanner Stage 4		Projection of the areola and papilla to form secondary mound above the level of the breast and further enlargement	 IV
Tanner Stage 5	Adult Breast	Projection of the papilla only, as the areola recesses to the mature contour of the breast	 V

Tanner Stage1	Preadolescent	No discernable difference between vellus hair on the mons and anterior abdominal wall, no pubic hair	 I
Tanner Stage 2		Appearance of few, sparse, lightly pigmented hairs, with minimal curl on the labia	 II
Tanner Stage 3		Hair becomes darker, coarser and begins to spread over the junction of the labia	 III
Tanner Stage 4		Adult hair type emergens, covers mons pubis, but does not extend to the thighs	 IV
Tanner Stage 5	Adult hair pattern	Adult hair type in the classic female pattern	 V

GONADAL DEVELOPMENT AND FUNCTION

During fourth and fifth months of fetal development, occurs the appearance of primordial follicles which constitutes the life long store of follicles for a woman. Thereafter, the follicles grow and enters the antral stage . During puberty, follicular growth takes place and forms oocytes which enlarges to form granulosa cells. These follicles undergo luteinisation during the reproductive stage, forming corpus luteum. It is one of the main source of gonadal steroids after ovulation. In the absence of fertilization, the follicles undergoes dedifferentiation and cytolysis.

Ultrasonographic evaluations show that during pubertal growth, there is increase in the uterine corpus form an initial tubular form to bulbous form. There is increase in the uterine length from 2-3 cms to around 5-8 cms. After the pubertal onset, there is increase in volume of ovary from 0.7-0.9 ml to around 2-9 ml.

CONTROL OF GROWTH SPURT IN ADOLESCENT

The greatest growth development occurs in infancy, thereafter it reduces to minimal till the onset of puberty. Pubertal growth is controlled by complex mechanisms involving growth hormone ,insulin like growth factor, gonadal and thyroid hormones. The important decisive factor of pubertal

growth is the rate at which circulating growth hormone level increases. GH acts via secretion of IGF-I ,which promotes growth and differentiation.

b) Gonadal steroid act through induction of GH secretion and limiting the adult height by stimulating fusion of epiphysis.

Marshall and Tanner showed that the average age for attaining the peak height velocity in girls is between 12-14 years.

BEHAVIOURAL CHANGES OF PUBERTY :

Adolescence period is a difficult time for the child as well as the parents as it involves profound physical changes and triggers emotional changes, cognitive and behavioural changes.

This alternation in the cognition processing clearly associated with change in adolescent's attitudes towards themselves and others. The psychosocial changes of puberty predisposes to increased depression, twice more common in girls than in boys.

HORMONAL AND METABOLIC CHANGES IN PUBERTY :

Development of hypothalamic-pituitary- portal axis results in dramatic rise in LH and FSH in fetal pituitary , but it falls around term because of negative feedback effects of oestrogen and progesterone from placenta. It remains suppressed

in early infantile period. This pre-pubertal pause lasts for approximately one decade. The HPO axis in female sex develop in two distinct stages during puberty:

1) Gonadal steroids dependent negative feedback mechanisms

2) Intrinsic CNS inhibitory mechanisms.

COMMON PROBLEMS ASSOCIATED WITH PUBERTY

1) Delayed Puberty :

Delayed puberty is defined as absent or incomplete sexual maturation by the age at which 95% of children of the same sex has started pubertal development.

The Causes includes:-

a) Constitutional delay (commonest)

b) Hypogonadotrophic Hypogonadism

c) Hypergonadotrophic -Hypogonadism (Primary gonadal failure)

Constitutional delay which is the most common cause of delayed puberty is considered as due to physiological immaturity or functional deficiency of gonadotropins. Such girls often give history of delayed menarche in their siblings or mother.

Evaluation of Delayed Pubertal Development:

1) Evaluation begins with careful history taking, which includes complete family history. Emphasis to be given on the age of the pubertal milestones in other siblings and also mother.
2) A detailed physical examination.
3) The Bone age measurement.

Laboratory evaluation and Imaging :

1) Measurements of serum FSH,serum LH, serum Estradiol, serumTSH, free thyroxine(T4), prolactin , DHEA-S
2) X-ray of bone
3) Karyotyping
4) MRI or CT scan of cranium (when indicated)

Treatment:

1) Reassurance , psychological support to the adolescent girl as well as the parents.
2) Treat the specific cause if diagnosed like thyroid hormone supplementation in case of hypothyroidism, dopamine agonist therapy in hyperprolactinemia, neurosurgical intervention in operable cranial tumors etc.

3) Hormonal therapy – promotes the age related secondary sexual growth. Oral estrogen 0.25- 0.5 mg is given, increasing gradually on an interval of 3-6 months according to the response (Tanner stage, bone age). Progestin is started only after commencement of the menses, or after 1 – 2 years of estrogen treatment so that it does not interfere with the development of breast. After the breast development and establishment of menses, hormonal therapy can be discontinued for 1 to 3 months in order to observe commencement of spontaneous menstruation .

Persistent hypogonadism even after 18 years of age suggests congenital GnRH deficiency.

2) PRECOCIOUS PUBERTY:

Precocious puberty is defined as" the occurrence of pubertal growth 2.5 standard deviations earlier than the average age." It is more common in girls than boys (**Speroff et al 1999).**

Classification:-

a) Gonadotropin dependent precocious puberty- it is also known as "Peripheral or Pseudo Precocious Puberty". It is due to the early exposure of sex steroid, independent of GnRH and gonadotropins resulting in early sexual development. It may be isosexual or contrasexual.

Evaluation :

a) Clinical, medical history and family history

b) Complete Physical examination including Tanner staging and bone age.

c) Endocrinological evaluation :

Basal gonadotropin level, Serum LH, Thyroid function test, GnRH stimulation test, Serum estradiol, DHEA-S, testosterone, cortisol

d) Imaging - MRI brain, Abdominal and pelvic ultrasonogram

Treatment:

The aim of the treatment is to slow down the development until the girl attains normal pubertal age, to maximize the adult height, and to reduce the risk of psychological problems due to early sexual maturation.

Reassurance and psychological support to the adolescent girl and her parents is an important aspect in the treatment.

GnRH agonist therapy is the drug of choice in GnRH dependent precocious puberty **(Michael, Thomas & Robert et al).**

MENSTRUAL CYCLES :

The word 'Menarche' is coined from a greek word 'men' meaning ' moon' and 'arkhe' meaning 'beginning'. The normal menstrual cycle results from a complex feedback mechanism involving the hypothalamus , pituitary ,

ovary and uterus. According to Zarcharias et al , regular menstruation has been shown to occur little more than one year after menarche.

Most of the early menstrual cycles are anovulatory cycles. In Vollman's series (1977) , 55 percent of cycles were anovulatory at gynaecological age of 1-2, decreasing to 3 percent at gynaecological age of 11-12. Anovulatory cycles usually persists for one year but can even prolong upto 4-5 yrs after the menarche. There are variations in the interval between cycles, their duration and the amount of blood loss . Such variations are within the physiological limits and needs basic investigations and proper counselling.

According to Metcalfal 1988, " menstrual dysfunction is common in the first 18 months following menarche". "As many as 58% of adolescents with gynaecological complaints will present as menstrual disorder" (**Dramusic et al 1991**).Menstural disorder is the most commom complaint in adolescent girls.

MENSTURAL DISORDERS:

As per Menstural Disorder Committee 2004 FIGO developed two systems classification for AUB

- **FIGO AUB System 1, by defining the parameters of normal menstrual bleeding, establishes a mechanism for defining the various symptoms that**

comprise AUB. Terms such as menorrhagia, oligomenorrhea, metrorrhagia and dysfunctional uterine bleeding are eliminated

- **FIGO AUB System 2, PALM-COEIN categorizing the various possible causes or contributors to the symptoms of AUB in the reproductive y**

FIGO AUB SYSTEM 1 CLASSIFICATION(2018)

CATEGORY	NORMAL	ABNORMAL
Frequency	>24 days to < 38 days	Absent-amennorhoea Infrequent >38 days Frequent <24 days
Duration	Less than or equal to 8 days	Prolonged > 8 days
Flow volume (patient determined)	normal	Light heavy
Regularity	Shortest to longest cycle variation<7 to 9 days	Irregular:variation > 8 to 10 days
Intermenstural bleed Bleeding between cyclically regular menses	none	Random Cyclic-early cycle mid cycle late cycle
Unscheduled bleeding on Progestins with or without Estrogen Gonadal steroids	none	present

For clinical purposes, UK National Institute for Health and Care Excellence defines Heavy menstrual bleeding as "Excessive menstrual blood loss which interferes with a woman's physical, social, emotional, and/or material quality of life"(5,6)

ABNORMAL UTERINE BLEEDING IN ADOLESCENT:

Abnormal uterine bleeding (AUB) is defined as any bleeding from uterus which is abnormal in duration, volume and frequency. It accounts for nearly half of the gynaecological problems in adolescent population(7)

Menstural disorders are the most common gynaecological problem in adolescent age group and its is the most common reason for consultation with doctors(8)

HEAVY MENSTURAL BLEEDING:

HMB is defined as "excessive menstrual blood loss which interferes with a women's physical,social,emotional,material quality of life"

Evaluation of adolescent girls with heavy menstrual bleeding should include assessment for anaemia due to blood loss, the endocrine disorder which leads to anovulation, and for the presence of any bleeding disorder. Ultrasonography can be considered for patients who do not respond to initial management.

The first-line approach to acute bleeding in the adolescent is medical management

• Hormonal treatments are safely used in adolescents; they have positive effects on school performance and on the social activities by decreasing the severity and number of bleeding episodes without affecting the hormonal axis during the maturation process.

Hemodynamically unstable adolescents with heavy bleeding are hospitalized Antifibrinolytics such as tranexamic acid or aminocaproic acid in oral and intravenous are used to stop bleeding.Blood transfusion to correct anaemia.Maintenance hormonal therapy initated after correcting acute heavy menstrual bleeding

Iron replacement therapy should started for all adolescent girls with anaemia due to bleeding.

COUNSEL ADOLESCENT GIRLS AND THEIR FAMILIES ABOUT PROBLEMS RELATED TO MENSES AND ITS TREATMENT

HEAVY MENSTURAL BLEEDING IN ADOLESCENT:

It is the excessive menstrual blood loss between the period of menarche and 19 years of age. Detail history taking is the most important part of evaluation.Heavy menstrual bleeding is a subjective diagnosis. Some adolescent tell 20 ml bleeding as heavy blood loss while another adolescent tells 120 ml as normal blood loss. Anovulation and bleeding disorders make up the most of the cases of HMB in adolescent girls. In adolescent girls , the

HPO axis takes some time to mature after menarche, which can lead on to anovulation cycles.

In the first 2 years after menarche, around 55-82% of cycles are anovulatory, and by the fourth and fifth year this decreases to around 20% .

These girls generally lack the positive feedback mechanisms necessary to initiate a LH surge for ovulation despite increased follicular estrogen . But, the negative estrogen feedback mechanism is intact in these girls. These are hypothalamic disorders rather than pituitary as implied by normal GnRH stimulation.

Unopposed oestrogen stimulates the endometrial growth, which outgrows its blood supply. The endometrium gets excessively thickened and unstable , and the lining breaks down irregularly and in an unpredictable manner. This leads to heavy menstrual bleeding

Causes of HMB in adolescent :

• Anovulatory uterine bleed

ANOVULATION is the most common cause for AUB(9)• Coagulation disorders

The prevalence of inherited bleeding disorders in teenagers with menorrhagia reported in the recent literature is 10.4 % (10)

– Idiopathic thrombocytopenic purpura

- Von willebrands disease (32-100%)

– Platelet disorder- Bernard Soulier syndrome (51%), Glanzmann's thrombasthenia(98%)

• Thyroid dysfunction

• Endometrial tuberculosis

• Pregnancy (In instances of heavy bleeding, adolescent pregnancy should be ruled out.)

History and Physical Examination:

The evaluation of adolescent girls with AUB should begin

With a detailed history taking. It is important further to assess family history for any known bleeding disorders. In physical examination, weight, height, BMI, pulse and orthostatic blood pressure should be recorded..Examination of other body systems gives insight into endocrinological disorder or systemic disease

Investigation :

1) Complete hemogram ,

2) coagulation profile (bleeding and clotting time, Prothrombin time, apTT),

3) Thyroid function test(TSH ,Free T4,Free T3)

4) Ultrasonogram of pelvis

If history indicates a bleeding diathesis or if menstrual bleeding is severe or prolonged , or if initial screening is abnormal, specific lab tests for coagulation defects to be done.

In developing countries like India, where tuberculosis is highly prevalent, it is routine to rule out tuberculosis by laboratory tests like chest X-ray, mantoux and even TB-PCR of the first day menstrual blood.

Treatment :

The objective of initial assessment is to determine which adolescent girl needs treatment and which can be observed until the HPO axis maturation to have regular normal menses.

1) Reassurance and Counselling - In most of the adolescents, this is the only therapy needed.
2) Anaemia to be corrected with iron supplementation and high protein diet and if needed blood transfusion.
3) NSAIDS like mefenamic acid, antifibrinolytic - tranexamic acid and aminoaproic acid , can reduce menstrual blood losses by 50%.
4) Acute bleeding can be stopped by 10 mg of norethisterone 6^{th} hourly for 48 hours (till bleeding stops) followed by 1TDS for 7days followed by 1 BD for 7days followed by 1 OD for 21days orally. After withdrawal bleeding cyclic progestogen therapy is given for 3 to 6 cycles.
5) Hormonal therapy: It is the most effective therapy, with more than 93% of adolescent girls responding to some form of hormonal therapy.

Indication for start of hormonal treatment are as follows:-

a) Anaemia

b) Recurrent episodes

c) Restriction of routine activities

The initial medical therapy is the use of oral norethisterone 5-10mg followed by use of combined oral contraceptives .

If Oral contraceptives are contraindicated, or the patient and family does not wish to start OCPs, then cyclic progestogen can be used. Oral norethisterone 5mg is given for 21 days each month to induce a withdrawal bleeding in a cyclic and predictable manner. This pattern is continued for 3-6 months.

Careful assessment for prompt recognition is important in adolescents with menorrhagia. No single therapy is universal, and it must be tailored according to their needs.

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AMENORRHOEA :

Amenorrhoea means absence of menstruation. It is a symptom and not a disease. It has various causes. Any of the ensuing criteria needs to be fulfilled to be evaluated further for amenorrhoea (speroff's 9 th edition)

"a) Absence of menses by age of 14 years in the absence of development of secondary sexual character.

b) Absence of menses by age of 16 years irrespective of presence of secondary sexual character.

c) Absence of menses in a previously menstruated women, for an interval of time equivalent to a total of at least three previously cycles or for 6 month."

First two criteria falls under the definition of primary amenorrhoea, while the third one comes under secondary amenorrhoea.

Etiologies of Amenorrhoea :

Primary amenorrhoea is the result of genetic or anatomic abnormalities.

Causes are:-

i) Abnormalities of HPO axis –

- Constitutional delay
- Primary ovarian failure
- Kallmann's syndrome
- Gonadal dysgenesis
- Functional (stress, exercise, anorexia etc)

ii) Chromosomal abnormality

iii) Anatomic abnormality- Imperforate hymen, absent vagina, transverse vaginal septum etc.

iv) Medical disorders – Chronic illnesses like Juvenile diabetes, Tuberculosis, Thyroid disorders

v) Enzyme deficiencies

Secondary amenorrhoea are more commoner than primary amenorrhoea.

Causes are divided further as:-

i) Hypothalamic disorders – Stress, excessive weight gain / loss, tumors.

ii) Pituitary dysfunction - Cushing's disease, adenomas.

iii) Ovarian causes – PCOS, Premature ovarian failure

iv) Uterine causes – Tubercular endometritis

v) Medical causes –Thyroid dysfunction, chronic illness

vi) Others – Pregnancy and lactation.

Approach to Patient of Amenorrhoea

1. A thorough history taking of the patient as well as family . It should include girl's menstrual history, physical growth , previous medical and surgical histories.
2. Physical examination : height , weight, BMI, Nutrition , anthropometry, thyroid, breast (Tanner staging), hair distribution, secondary sexual characters ,etc.
3. Pelvic examination :

a) Examination of genitalia : Tanner staging of pubic hair/ virilization / ambiguous genitals. Presence or absence of uterus , vaginal septum, imperforate hymen, absent vagina.

4) Pregnancy – to be ruled out

5) Tuberculosis should be ruled out

6) Hormonal evaluation :

a) serum FSH and LH

b) prolactin

c) testosterone

d) DHEAS

e) Thyroid function test

f) Progesterone

g) Estrogen

The hormonal tests must be done at appropriate time of the menstrual cycle.

7) Ultrasonogram

Hormonal assessment :

- Serum FS, LH, estradiol – if the levels are low then the cause is in the pituitary.
- If FSH and LH are high, but estrogen is low then –

a) Evaluate for bone age, if lower than the chronological age, then wait and watch.

b) Karyotyping done to rule out Turner's syndrome

Treatment:

The main aim of treatment in Primary amenorrhoea is to correct the underlying pathology and to prevent complications of the disease process. ACOG recommends an initial reproductive health visit at 13 to 15 years of age.

Principles in the management of Primary amenorrhea :

1. Identify the underlying disease and treat the cause.

2. Reassurance :

Adolescent girls and their parents should be reassured regarding normal pubertal development in case of delay in both growth and puberty.

3. Short term therapy with sex steroids (estrogens)

This may be needed in adolescent girls with Combination delay of growth and puberty (CDGP) to trigger the onset of pubertal growth.

4. Induction of puberty and maintenance of puberty :

To prevent early epiphyseal closure and to avoid psychological embarrassment due to peer pressure, treatment should begin at 13 years of age.

The starting dose of ethinyl estradiol is 1-2 mg/day, gradually

Increased at every 2-3 months. Progestrogen should be added to therapy either on Full breast development or after break through bleeding occurs.

5) Growth promoting and potentiating strategies :

In cases like Turners and Prader-Willi syndrome, the short stature is managed with growth hormone therapy. To assure maximum height gain , estrogen replacement therapy should be timely added for synergistic action and to prevent early epiphyseal closure.

6) Prevention of osteoporosis :

Girls with permanent gonadal failure need estrogen therapy for prevention of osteoporosis.

7) Fertility

With many advancements in the reproductive medicine, patients with pubertal disorders have been assured with fertility prospects. The various ways are :-

- Ovulation induction with gonadotropins – in cases of hypogonadotropic hypogonadism
- Artificial reproductive techniques with donor eggs – in hypergonadotropic hypogonadism
- Trans-sphenoidal surgeries for Pituitary adenoma
- Bromocriptine for Hyperprolactinemia
- Mullerian agenesis – invitro fertilisation with surrogacy

DYSMENORRHOEA :

Dysmenorrhea is commonly described as a severe, painful, cramping sensation in the lower abdomen that is often associated with other symptoms, such as sweating, headaches, nausea, vomiting, and diarrhea(11) Most of Adolescent girls suffer the pain of dysmenorrhea and the discomfort associated with it silently due to lack of knowledge about reproductive health. The prevalence of dysmenorrhea in adolescent girls was found to be 79.67%.(12) .Several studies shows most adolescent girls with dysmenorrhoea have a strong family history of dysmenorrhoea either in their sisters or mother(13).Dysmenorrhoea is classified to be mild, moderate, or severe , based on severity or into primary or secondary type depending on the etiology. General simpler measures like counseling , reassurance, lifestyle modifications are needed to overcome this problem.Detailed history taking is most important in the management of these cases, which includes details about the menstrual cycle and the associated problems.But based on the severity and underlying cause, it may be needed, to be treated by medical or surgical management.

Diffentiating features of Primary and Secondary dysmenorrhoea

	PRIMARY DYSMENORRHOEA	SECONDARY DYSMENORRHEA
ONSET	First day of menstrual cycle	Prior to menses
Duration	12 to 24 hrs	Throughout the menses
Ovulation	Present	Absent
Etiology	Increased PGE2 , PGF2	Congestion
Pathology	Usually absent	Uterine or pelvic pathology present
Prevalence	Most common	Less common

.**POLYCYSTIC OVARIAN SYNDROME (PCOS)**

The Rotterdam Consensus, held jointly by the European and the North American associations of reproductive medicine in 2003, defined the criteria for diagnosis of PCOS which is the most used for both individual diagnosis and research worldwide.(14)

It defined PCOS as the presence of any two of three features:

1. hyperandrogenism (clinical or biochemical)

2. ovulatory dysfunction (often manifested by menstrual irregularities)

3. polycystic ovarian morphology (PCOM) by ultrasound.

The syndrome is a diagnosis of exclusion that should be established only after evaluation of other causes of anovulation or androgen excess.

Several studies are performed regarding its pathophysiology but till date no final consensus have been agreed regarding the cause, although familial clusters of PCOS has been reported recently, suggesting a major etiological component. Steven Frank study shows the involvement of two key genetic factors in the etiology of PCOS , a) the steroid synthesis gene CYPIIa and b) insulin gene- Variable number tandem repeats (VNTR).

PCOS comprises a wide spectrum of signs which ranges from the presence of multicystic ovarian morphologies detected by ultrasonograms, to obesity , infertility, menstrual irregularities and to even cardiovascular diseases – all because of metabolic disturbances involving levels of LH, insulin, androgen and dyslipidemia. The Pre-pubertal ovaries are usually multicystic. These multicystic ovaries are normal findings in evolution of mature hypothalamic pituitary- gonadal axis. Therefore in short PCOS is defined as" a dysfunctional condition of the ovary in which there is increased LH dependent secretion of androgen from hyperplastic theca and stromal cells of ovary".

Clinical features of Polycystic ovarian syndrome :-

a) Hirsutism

b) central obesity

c)Menstrual irregularities

d) Infertility

e) Pelvic examination – often normal

Laboratory Findings :

Endocrinological Screening :

Prolactin and TSH levels are done to rule out pituitary or thyroid disorders as an etiology for anovulation.

In PCOS there is –

- Normal or increased LH, FSH
- Normal or increased 17 ketosteroid
- Normal or increased E2 levels
- E2:E1 ratio alteration
- Increase in DHT
- Increased LH/FSH ratio

Sonographic Findings:

Typical Ultrasonographic findings in PCOS

i) No. of cysts = >10mm pushed periphery (Necklace pattern)

ii) Uterine width ratio to ovarian length=<1,

iii) abnormal stroma

iv) Increased ovarian roundness index =>0.7

v) Increased ovarian volume (> 10 ml),

Ovarian Histology :

Multiple microcysts with atretic follicles or immature follicles , thickening ,fibrosis and sclerosis of ovarian capsule.

Treatment :

Integral management by a multidisciplinary approach help patients to adhere to lifestyle interventions and thereby reduce body weight and recover their metabolic and reproductive health(15).

Treatment depends on factors such as :

• Age of girl

• Menstrual irregularities

• Presence or absence of acne, hirsutism , obesity

• Presence or absence of hyperinsulinemia , hyperandrogenism , high LH levels

• Preventing long-term sequelae.

The purpose of the treatment is to-

• Treat menstrual irregularities

• Treat infertility

• Treat hirsutism

• To prevent the long term consequences of PCOS.

Thus, the treatment is to be prescribed as per the requirement of women and as follows

a) Life style modifications

b) Medical management

c) Surgical treatment

Lifestyle modification :

This includes weight reduction, low calorie diet intake, exercise, quit cigarette smoking etc. weight loss has beneficial effects on menstrual problems as well as in hirsutism .Studies have shown the reduction in levels of

(a) Serum free testosterone

(b) Insulin and insulin like growth factor I(IGF-I)

(c) increase in the levels of SHBG due to intake of very lowcalorie diet in girls having PCOS .

It has been shown that weight loss cause decrease in ovarian P450c17a activity and cause decrease in serum free testosterone level in obese girls having PCOS.

Weight reduction causes decrease in hyperinsulinemia and insulin resistance, increases SHBG levels and thus causes overall reduction in hyperandrogenism.

Medical Management :

Most commonly used drug is metformin which causes reduction in hyperinsulinemia and hyperandrogenism independent of changes in body weight (obesity) and Oral contraceptive pills for regularization of menstrual cycle. The usual dose for PCOS , metformin 500 mg thrice daily and can be gradually increased if needed. They should be cautioned that it may take 6 months or more for complete results and it may recur, later in reproductive life.

Surgical Management:

Surgical management is indicated for following cases: -

- If Medical therapy fails
- Infertility
- Hyperstimulation following medical therapy
- Previous pregnancy losses

SEQUELAE OF POLYCYSTIC OVARIAN SYNDROME

Long- term sequelae of PCOS is important to know because:-

- Higher incidence of PCOS in adolescent girls (20%) diagnosed by USG
- Because of the impact it produces on the future reproductive life.

Complication of PCOS

a) Short- term sequelae –

i) Obesity

ii) Menstrual irregularities

iii) Hirsutism

iv) Infertility

b) Long- term sequelae of PCOS (16)

i) Type 2 Diabetes

ii) Osteoporosis

iii) Cardiovascular disease

iv) Hormone dependent Cancer

INFECTIONS IN ADOLESCENT :

Due to lack of estrogen and alkalinity of vaginal secretions, adolescent girls are more prone for infections in the pre menarche period . Vaginal discharge is generally as a result of infection caused by non specific causes due to poor hygiene or as a result of specific infective etiology.

Etiology:

1) Chemical or Irritant

2) Poor Personal Hygiene:

Poor personal hygiene leads to candidal vulvovaginitis. Vulval irritation may follow worm infection like thread worms, pin worms secondary to anorectal contamination.

3) Infection :

Infection of vulval region and vagina i.e, vulvoginitis is most commonly due to infection caused by normal vaginal flora, which includes mixed aerobic and anaerobic organisms, commonly staph. epidermidis, bacteroides lactobacilli etc. Sexually transmitted infections caused by Neisseria gonorrhoea, Trichomonas vaginilis, Chlamydia trachomatis.

4) Foreign bodies

5) Sexual abuse

Diagnosis :

a) Detailed history includes sexual activity, type of vaginal discharge, use of antibiotics, concomitant systemic infection, treatment history etc.

b) Clinical examination – Per rectal Examination may be needed.

c) Vaginal or urethral discharge examined as wet smear in microscope.

d) Examination under sedation may be required if suspicious of foreign body in vagina or foul smelling discharge present. Management :

_ Non specific Infections : improve hygiene of the private parts. Local application of the oestrogen cream 0.10% for 2-3 weeks.

_ Specific infections : appropriate antibiotic therapy –

_Trichomoniasis : Metronidazole 200 mg three times a day for 7 days

Alternatively single dose of 2 gm of metronidazole

_ Candidiasis : Oral nystatin 5 lac international units three times a day for two weeks or oral therapy with fluconazole

Locally clotrimazole / miconazole cream for 6-12 days.

OVARIAN MALIGNANCIES IN ADOLESCENT :

In India incidence of ovarian neoplasms in adolescent accounts for about 4-14% of all ovarian neoplasms(shaw's gynaecology 17 th edition) Ovarian neoplasms account for approximately 1% to 2% of all malignant tumors in girls aged 17 years or below (17)

Ovarian masses may be benign or malignant. Dealing with the ovarian neoplasms in adolescents is a challenge because of rarity of presentation , atypical symptomatology, increased malignant potential, and probable serious outcomes on the patient's reproductive life.

Functional cysts of ovary are the most common benign ovarian masses detected in adolescent girls. Adolescents have the highest rates of PID which predispose them to develop tubo -ovarian abscesses. As far as true ovarian neoplasms are concerned , they comprises 1.5 percent of all adolescent tumors with absolute incidence of approximately 5.5percent.

Clinical Presentation :

Ovarian neoplasms are known for their silent clinical presentation and detected mostly incidentally. Common presentation is with the complain of only vague abdominal discomfort or bloating sensation of abdomen and thus initially treated with antispasmodics and antiflatulents. The presenting symptoms are pelvic pain, pressure symptoms on bladder and rectum, menstrual irregularities etc. In majority of cases it doesn't show any symptoms till it reaches an advance stage. However, now it has become clear that ovarian malignancies also cause particular symptoms in its definite stages of disease progression. So keeping this in mind, Symptom index has been developed for screening ovarian carcinomas. Torsion occurs in about 35 to 45% of ovarian tumors in adolescents. These cases has been wrongly diagnosed as appendicitis. The use of X- ray and ultrasound will increase diagnostic accuracy to 80 percent.

The most common tumors in adolescent girls (15 -19 years) are germ cell tumors (15%).

Dysgerminoma is the most common malignant germ cell tumor, which accounts for 30-40% of all ovarian cancers of germ cell origin.

Dysgerminoma destroys the ovarian tissue and may cause amenorrhoea which Should be differentiated from tuberculosis which often mimics an abdomino pelvic mass due to encysted ascites in abdomen.

Endodermal sinus tumor of ovary is also common germ cell tumor which is seen in paediatric and adolescent age groups. They grow rapidly and present as abdominal pain or abdominal enlargement.

Granulosa cell tumour presents as precocious puberty in early adolescence or as abnormal vaginal bleed in the older adolescent. It accounts for approximately 1-2% of all ovarian malignancies.

Investigation :

Baseline investigation must always include pregnancy test regardless of elicited sexual history.

Ultrasound , CT Scan, MRI scans forms the cornerstone for evaluation of the exact location, size, internal consistency, relationship with other structures and metastasis. Chest X ray should be done. Abdominal radiography for visualizing calcifications in teratomas.

Tumor markers is an important lab investigation which is extremely useful in monitoring ovarian neoplasms. Alphafetoprotein, CA125, human chorionic gonadotrophins are the tumor markers which gets elevated in specific malignancies. CA125 is increased in epithelial tumors . HCG and alphafetoprotein are elevated in endodemal sinus tumor and non gestational choriocarcinoma.

Management :

The main aim in the management of ovarian tumor is to conserve the reproductive potential without jeopardizing her life. Asymptomatic adnexal cystic masses requires only observation as they are mostly benign and regress spontaneously in a time span of 3-6 months or can promote regression with oral contraceptives for 3 months.

Surgery is indicated in following situations :

• Ovarian cyst > 6 cm without regression for 6 to 8 weeks

• solid ovarian lesion

• Any cystic lesion > 10 cm

• Ovarian lesion with papillary excrescences in the ovarian wall

• Bilateral or the Presence of ascites

Usually cystectomy is the surgery of choice in order to preserve the reproductive potential. Benign conditions shall be managed by conservative surgery either laparoscopy or by laparotomy.

Detorsion and oopheropexy is considered in cases with torsion.

Endometriosis in adolescent girls is managed predominantly by non surgical methods which includes prolonged suppression of ovulation. Mature cystic teratomas are surgically managed by removal of the affected gonad with preservation of ipsilateral fallopian tube. In cases like teratomas, inspection of contralateral ovary to be done to rule out bilateral disease.

Fertility preservation surgeries in adolescent girls:

Preservation of fertility has been a matter of great concern for the gynaecologist dealing with adolescent girls, at the risk of ovarian damage. In them fertility may be impaired due to repeat ovarian surgeries , gonadotoxic treatment or genetic disorders. In recent times, to preserve fertility in teenage girls newer techniques like cryopreservation of embryos, mature oocytes and immature oocytes and ovarian cortex prior to the use of gonadotoxic treatment.

Cryopreservating ovarian tissue has been proposed for patients suffering from Turner's syndrome, especially the mosaic type.

Treatment of gynaecological cancer in adolescents should be a multi-disciplinary approach and based on the degree of malignancy. The primary modality of treatment is surgery with proper staging. In advanced disease staging of malignant germ cell tumor ,associated with metastasis, surgery to be followed by post operative radiation therapy as the tumor is radiosensitive. But the disadvantage with radiation therapy is the loss of fertility. So, now the treatment of choice is combination chemotherapy with drugs like BEP,VBP,VAC. Adolescent females treated for ovarian tumors should be closely followed Up with investigations , particularly if ovarian preservation was attempted.

Adolescent Sexuality :

Adolescence period is a critical time when there is increase in curosity and sexual drive. At this time they should be offered with an ideal window of opportunity to build the foundation of sexual and reproductive health . The problems associated with adolescent sexual behaviour is enormous on both the adolescent and the society. Developmentally, adolescent children reaches physical maturity before they are able to appreciate the consequence of their behaviour with cognition maturity. Teenager's major source of information regarding sexuality is their peer group, all of whom are experiencing the same behaviors. The family, the major socialize of other behaviours is not powerful in shaping the responsible sexual behaviour due to parental discomfort in sex education and discussion. A healthy attitude regarding healthy sexual interaction, and awareness of the adolescents' behaviour and needs, followed by counselling can prevent the possible traumatic consequences.

ADOLESCENT HEALTH PROGRAMS IN INDIA:

The 2030 Agenda for Sustainable Development and its Global stratergy for women's children's and adolescent health provides an opportunity for accelerated action on adolescent health.India has the largest adolescent population in the world.Adolescents have many sexual and reproductive health problems.Adolescent fertility rate is about 14%of fertility rate in

India.In India there are various health programs to address the problems of adolescent.

1. Kishori Shakti Yojana

2. Balika Samridhi Yojana

3.Rajiv Gandhi Scheme for Empowerment of Adolescent Girls

4. “SABLA”

5. Rashtriya Kishor Swasthya Karyakram

6. Adolescent Reproductive Sexual Health Programme (ARSH).

7.Adolescent Friendly Health Clinic

8. Rashtriya Bal Swasthya Karyakram

9.RED INDIA-Adolescent anaemia prevention programme.

MATERIALS AND METHADOLOGY

STUDY DESIGN :

Prospective observational study

STUDY SETTING :

The study will be conducted in the out patient and inpatient wards of department of obstetrics and gynaecology,Govt.RMH , Thanjavur Medical College.

STUDY SUBJECTS :

All adolescent girls(10-19years) attending the outpatient and inpatient wards of department of obstetrics and gynaecology,GRMH are included in the study.

INCLUSION CRITERIA :

Adolescent Girls(10-19years) attending OPD and admitted in inpatient wards of department of obstetrics and gynaecology, GRMH,Thanjavur with significant symptoms are included in the study.

EXCLUSION CRITERIA :

Adolescent girls with surgical or medical illness with no gynaecological problem.

Teenage pregnancy.

SAMPLE SIZE :

All the Adolescent Girls(10-19years) attending the outpatient and inpatient wards of Department of Obstetrics and Gynaecology, GRMH, Thanjavur with significant symptoms are included in the study

STUDY PROCEDURE:

After getting the IEC approval,I will conduct the study from january 2020 to December 2020 in all adolescent girls coming to OPD and admitted in ward with gynaecological problems in Department of Obstetrics and Gynaecology,GRMH,thanjavur. After getting consent from the participant and parent/guardian ,study will be conducted by history taking ,clinical examination and necessary laboratory investigations and ultrasound imaging . By this most common adolescent gynaecological problems are identified and their mode of treatment are analysed.

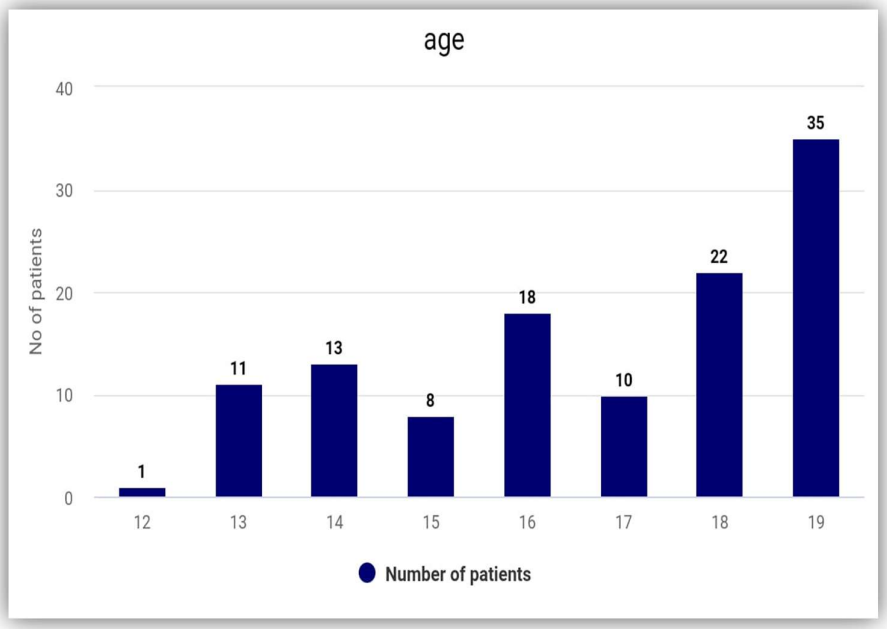
RESULTS AND ANALYSIS

CHART 1- AGE DISTRIBUTION

AGE IN YEARS	NO OF PATIENTS	PERCENT
12	1	0.8
13	11	9.3
14	13	11.0
15	8	6.8
16	18	15.3
17	10	8.5
18	22	18.6
19	35	29.7
TOTAL	**118**	**100.0**

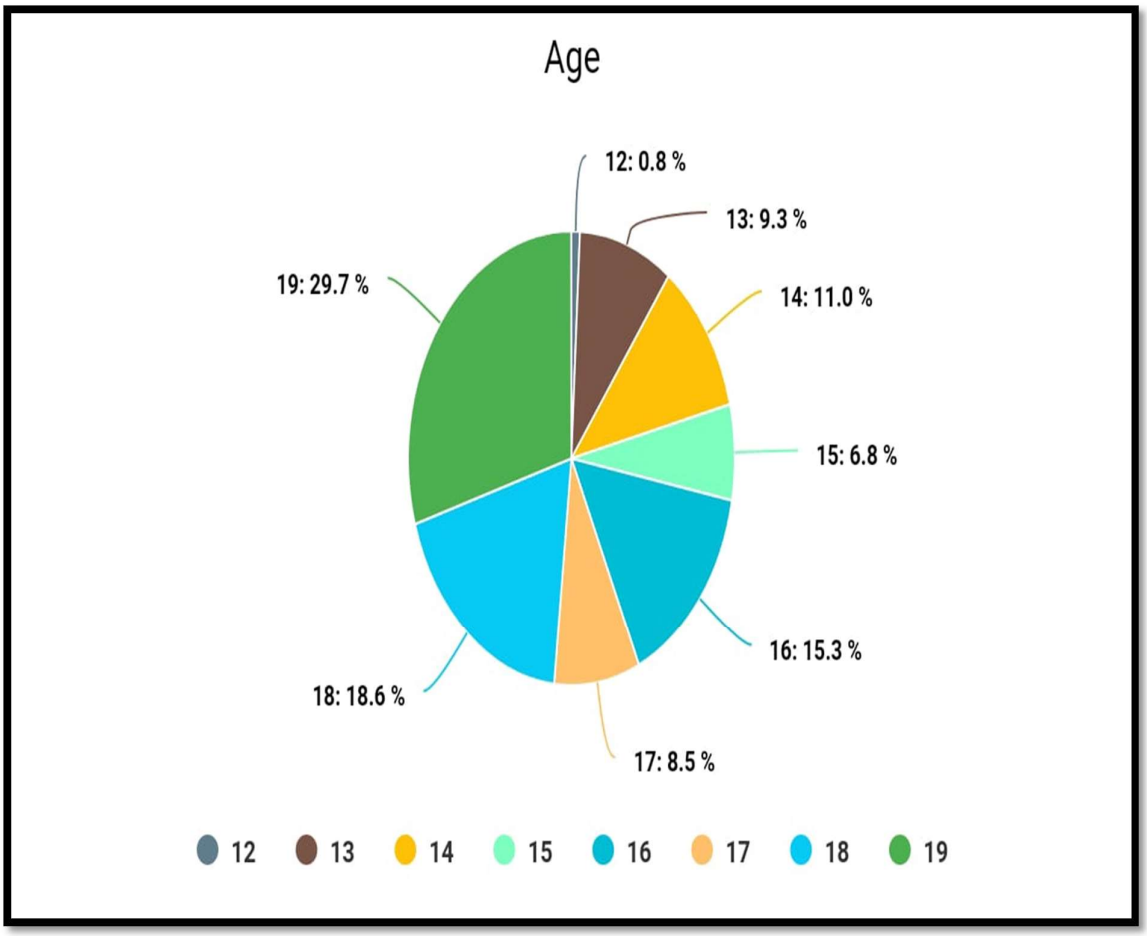
This table shows age distribution of adolescent girls in the study group.Maximum number of girls belong to 19 years of age(35/118) about 29.7% followed by 18 years of age (22/118) about 18.6%.

CHART 1:AGE DISTRIBUTION



In the present study majority of the adolescent girls are in the age of 19 years followed by 16 years.

CHART 1:AGE DISTRIBUTION



From this chart we concluded that major population in the study group was in the age of 19 years which is about 29.7%

TABLE 2:AGE GROUP

AGE GROUP	NO OF PATIENT	PERCENT
12-15 YRS	33	28
16-19YRS	85	72
TOTAL	118	100

From this table we can concluded that majority of the study population comes under the age group of 16 to 19 years . 85 girls out of 118 belong to 16 to 19 years of age which was about 72%.

TABLE 3 : EDUCATION

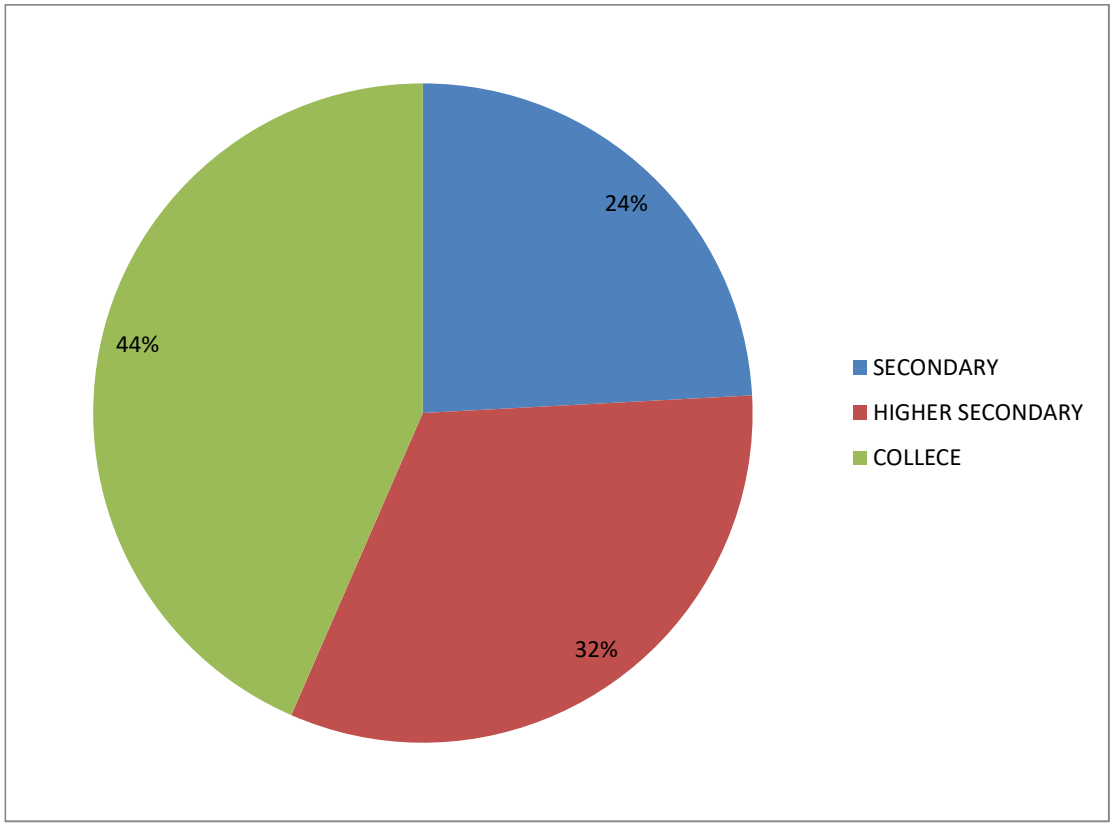
EDUCATION	NO OF PATIENT	PERCENT
SECONDARY	29	24.6
HIGHER SECONDARY	38	32.2
COLLEGE	51	43.2
TOTAL	118	100.0

This table shows the educational status of the adolescent girls in the study group.

The literacy rate among the adolescent girls in the study group is found to be 100%.

Maximum number of girls are studying in the college.

CHART 3 :EDUCATION



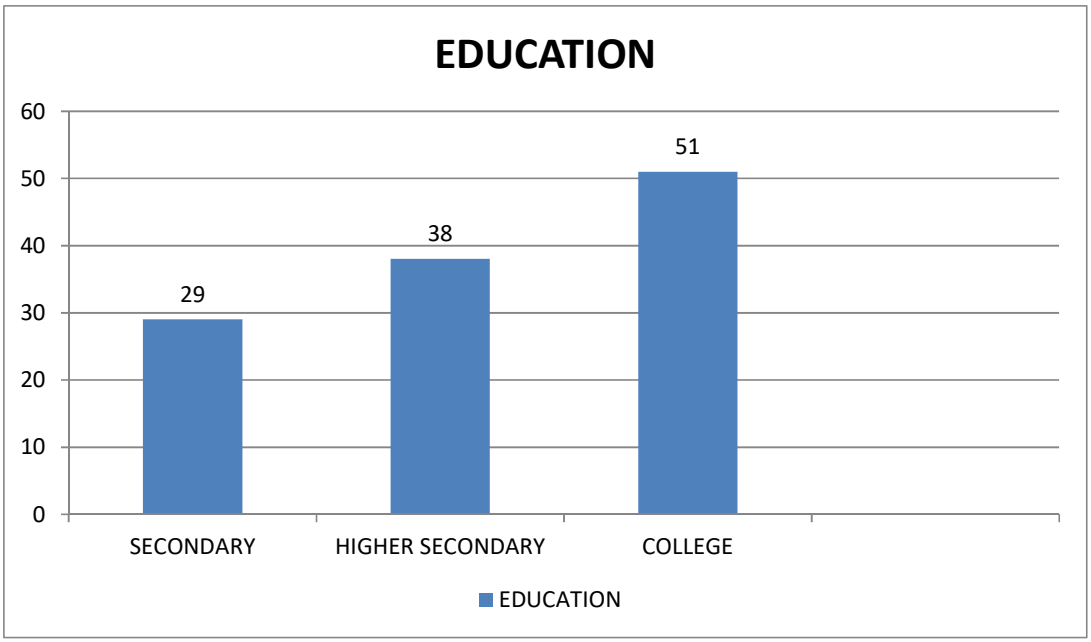
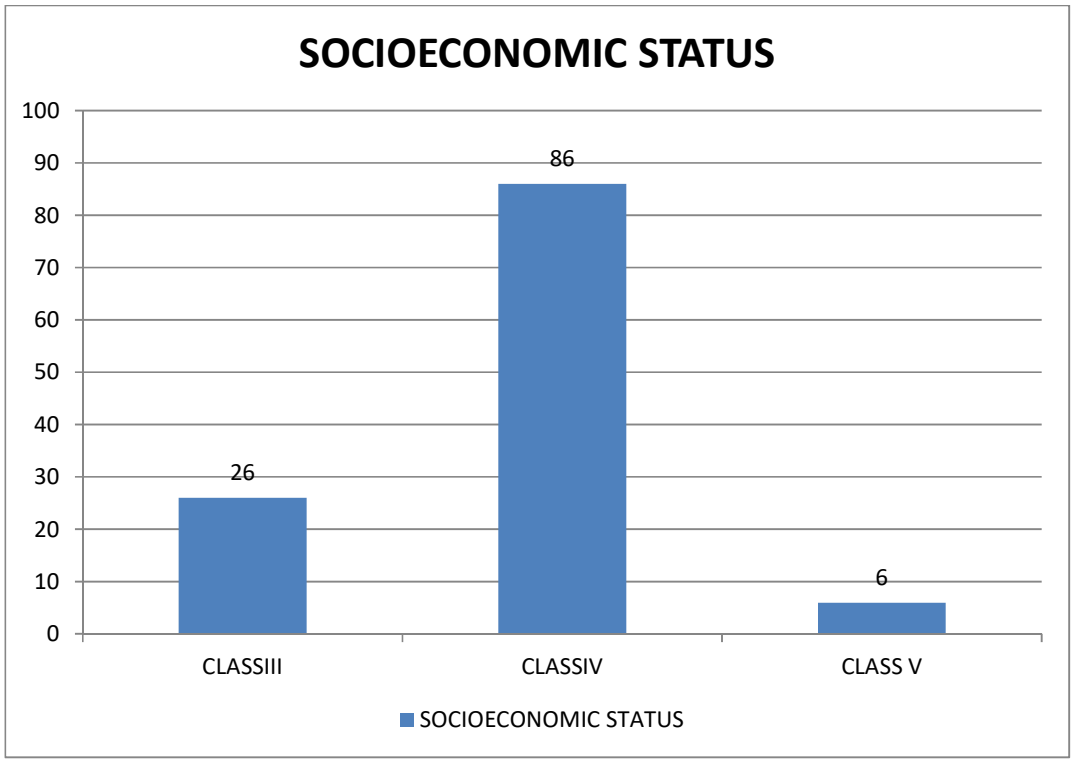


TABLE 4: SOCIOECONOMIC STATUS

SOCIOECONOMIC STATUS	NO OF PATIENT	PERCENT
CLASS III	26	22.0
CLASS IV	86	72.9
CLASS V	6	5.1
TOTAL	118	100.0

In this study maximum number of adolescent girls belong to socio economic class IV (Upper lower) 86/118 (72.9).

CHART 4:SOCIOECONOMIC STATUS



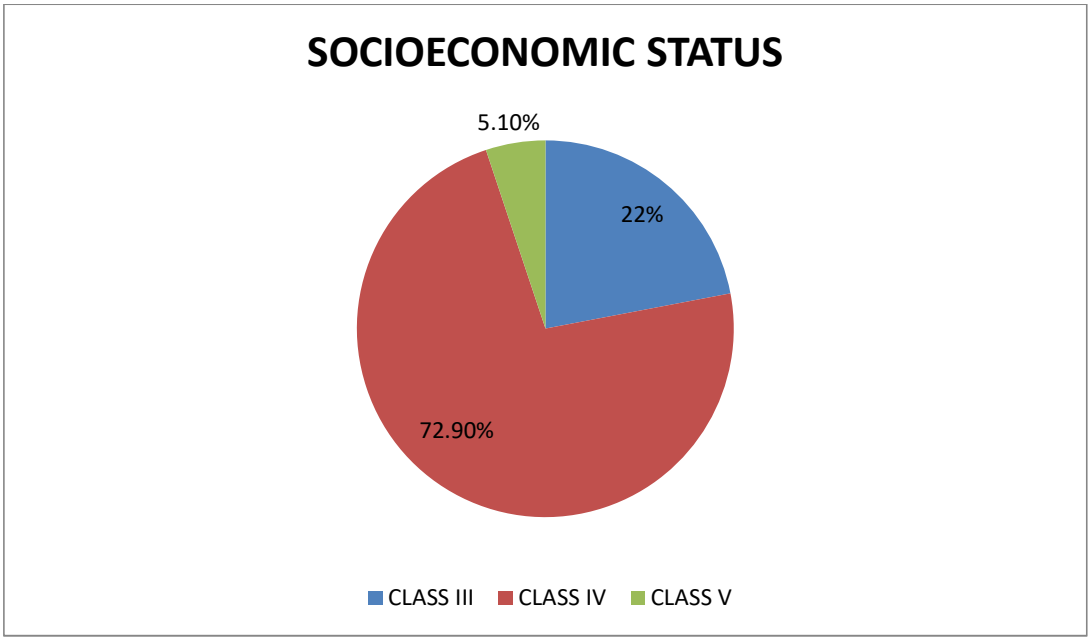


TABLE 5:DEMOGRAPHY

PLACE OF LIVING	NO OF PATIENT	PERCENT
RURAL	48	40.7
URBAN	70	59.3
TOTAL	118	100.0

Maximum number of girls in the study group belong to urban area (70/118) 59.3%.

CHART 5:DEMOGRAPHY

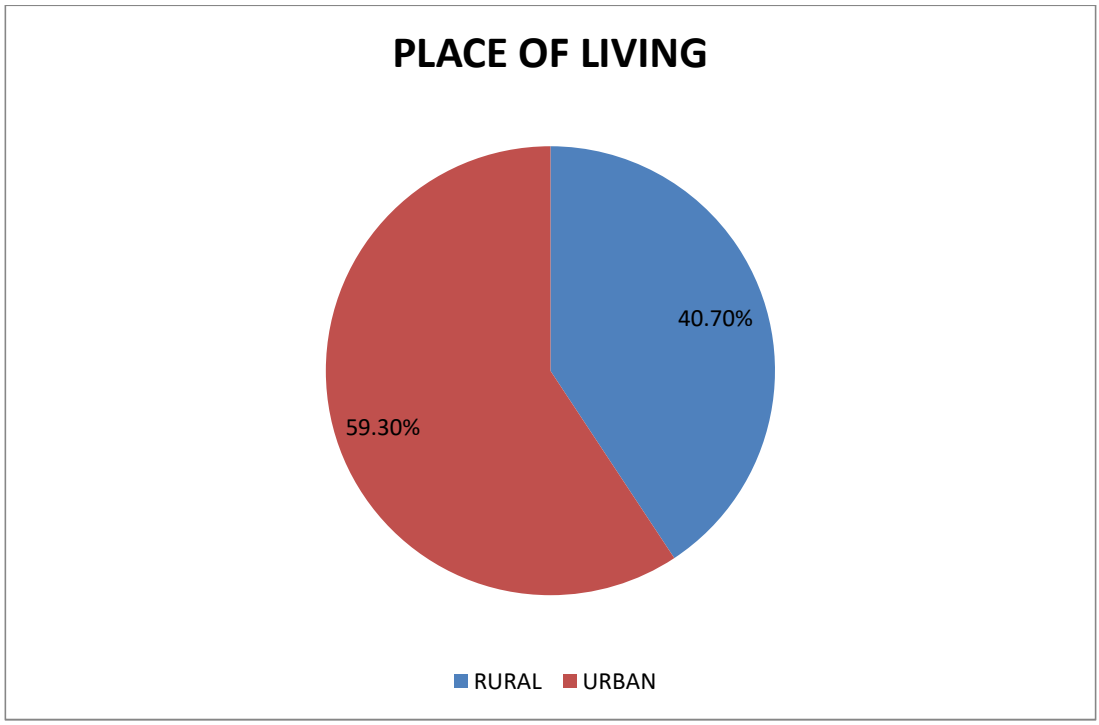
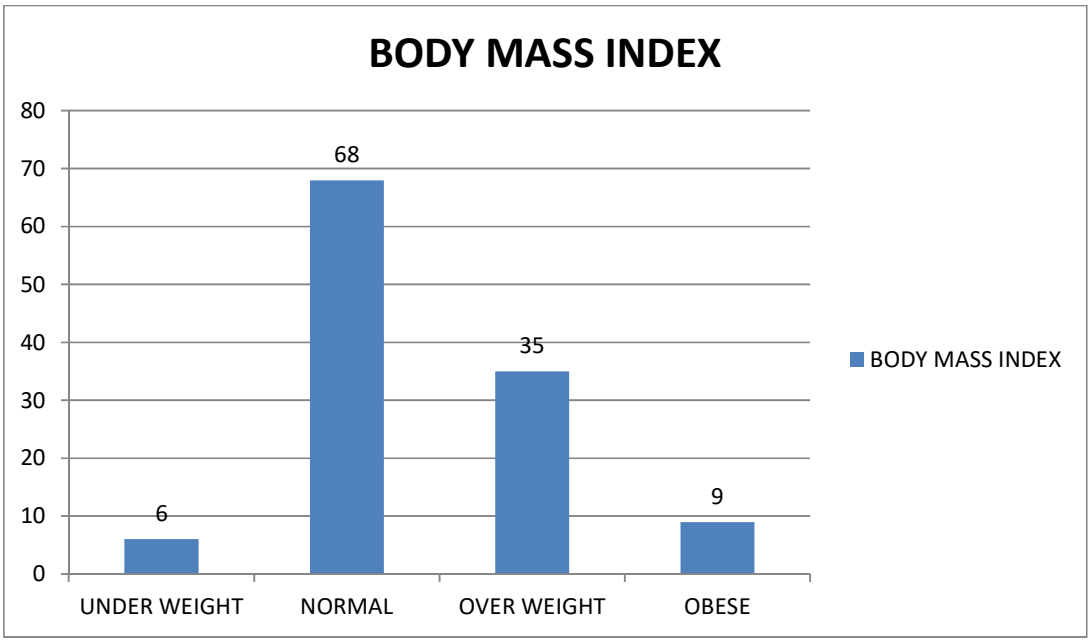


TABLE 6: BODY MASS INDEX

BMI	NO OF PATIENT	PERCENT
UNDER WEIGHT	6	5.1
NORMAL	68	57.6
OVER WEIGHT	35	29.7
OBESE	9	7.6
TOTAL	118	100.0

In this study group most of the adolescent girls belong to normal BMI (20 -24) about 57.6% followed by over weight(25-29) about 29.7%.

CHART 6:BODY MASS INDEX



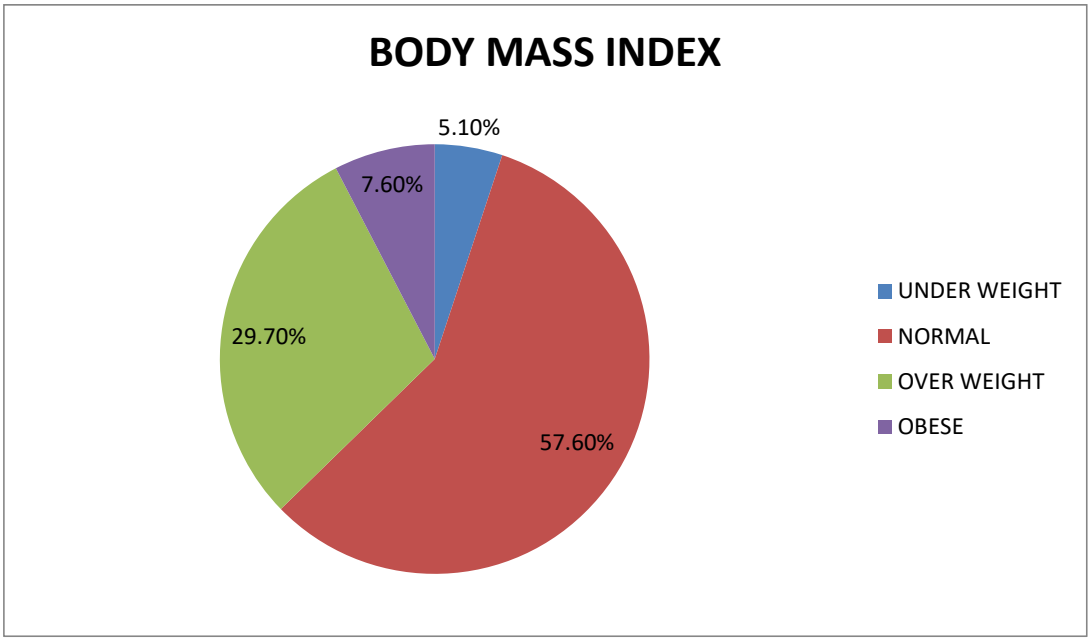


TABLE 7: PRESENTING COMPLAINTS

COMPLAINTS	NO OF PATIENT	PERCENT
AMENNORHOEA	7	5.9
FREQUENT PEROIDS	4	3.4
INFREQUENT PEROIDS	37	31.4
HEAVY FLOW	38	32.2
LIGHT FLOW	5	4.2
PAIN DURING MENSTURATION	7	5.9
ABDOMINAL PAIN	15	4.2
WHITE DISCHARGE	6	5.1
ABDOMINAL MASS	10	8.5

In this study most of the adolescent girls present with menstrual dysfunction. Majority of the girls have mentural disturbances.Majority girls presented with complaint of heavy menstrual flow 32.2% followed by infrequent periods 31.4%.

CHART 7:PRESENTING COMPLAINTS:

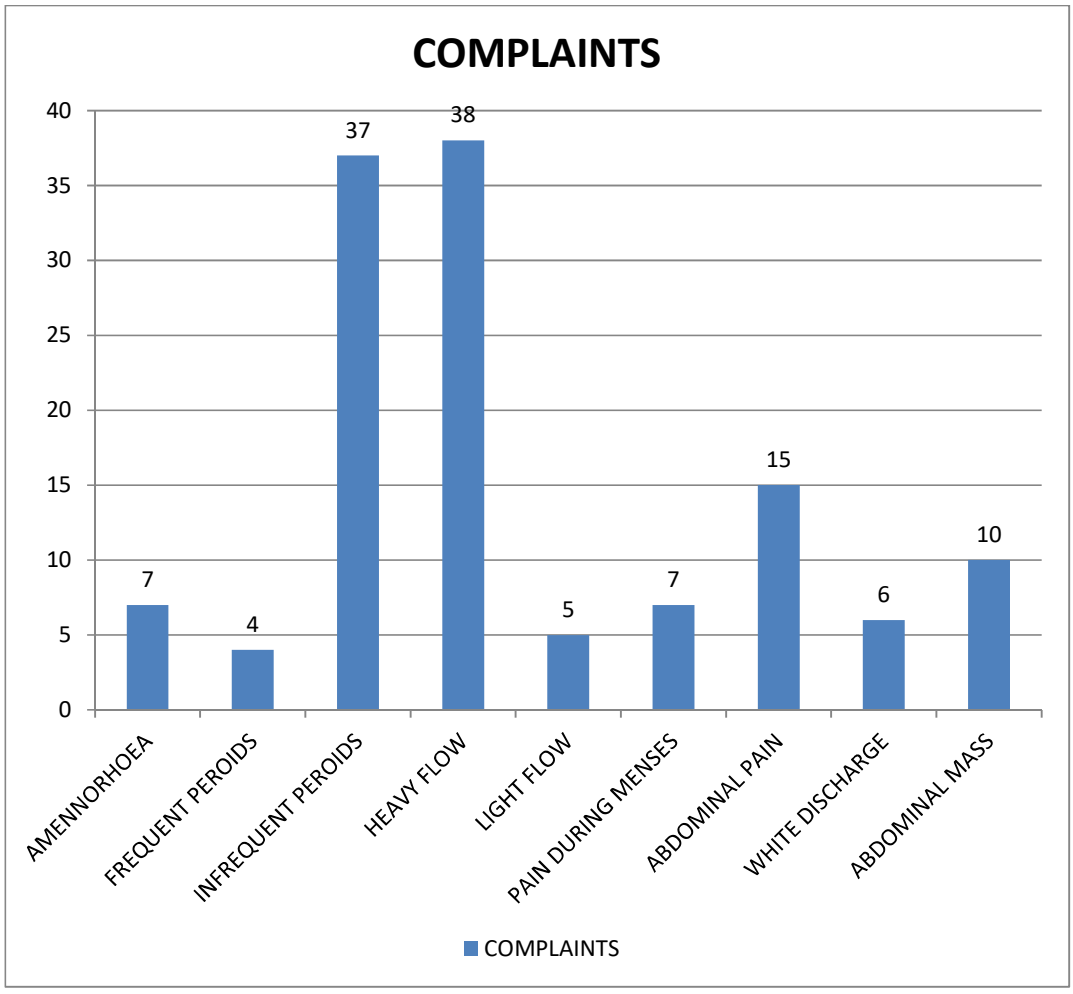


TABLE 8: TYPES OF MENSTURAL ABNORMALITIES

MENSTURAL ABNORMALITIES	NO OF PATIENT	PERCENT
AMENORRHOEA	7	7.1
FREQUENT CYCLES	4	4.1
HEAVY FLOW	38	38.8
IN FREQUENT CYCLES	37	37.8
LIGHT FLOW	5	5.1
PAIN DURING MENSTURATION	7	7.1
TOTAL	98	100

Menstural complaints is the most common complaint among the adolescent girls in the study group.Menstural disturbances ranged from amenorrhoea to heavy menstrual bleed.Dysmenorrhoea is also included with category of menstrual disturbances.Most common menstrual complaint is heavy menstrual bleed followed by infrequent cycles.

CHART 8: TYPES OF MENSTURAL ABNORMALITIES

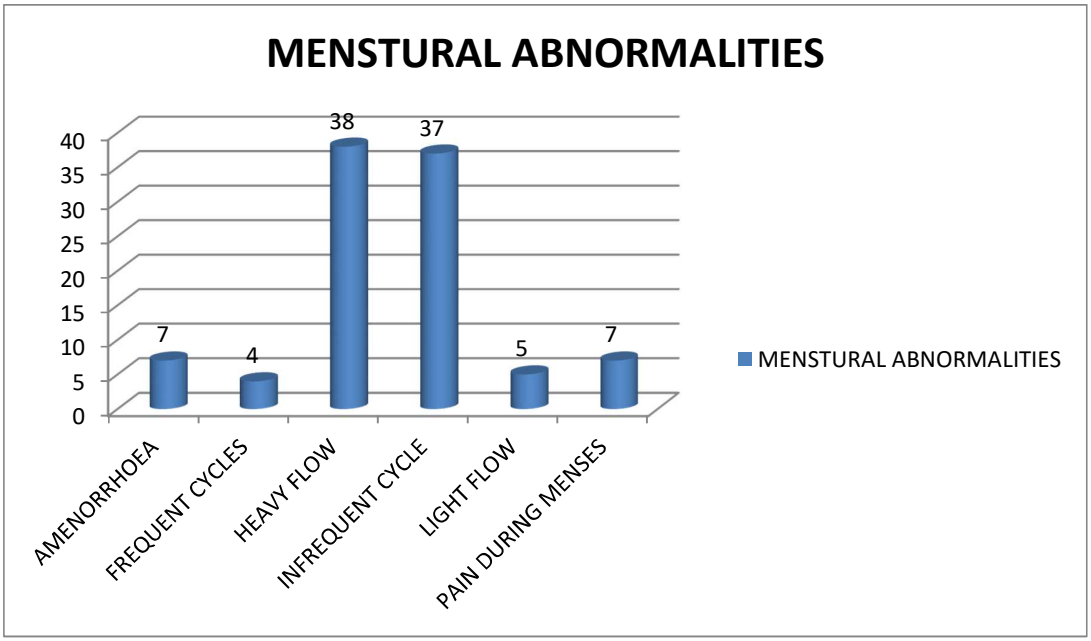


TABLE 9: ANAMEIA INCIDENCE

HAEMOGLOBIN LEVEL	NO OF PATIENTS	PERCENT
NORMAL	59	50
MILD	35	29.7
MODERATE	16	13.6
SEVERE	8	6.8
TOTAL	118	100

In this study group haemoglobin estimation was done to identify the incidence of anaemia.About 50% of girls have normal haemoglobin.29.7% of girls suffering from mild anamia.13.6% are suffering from moderate anaemia followed by 6.8% had severe anaemia(8/118).

CHART 9 :ANAEMIA

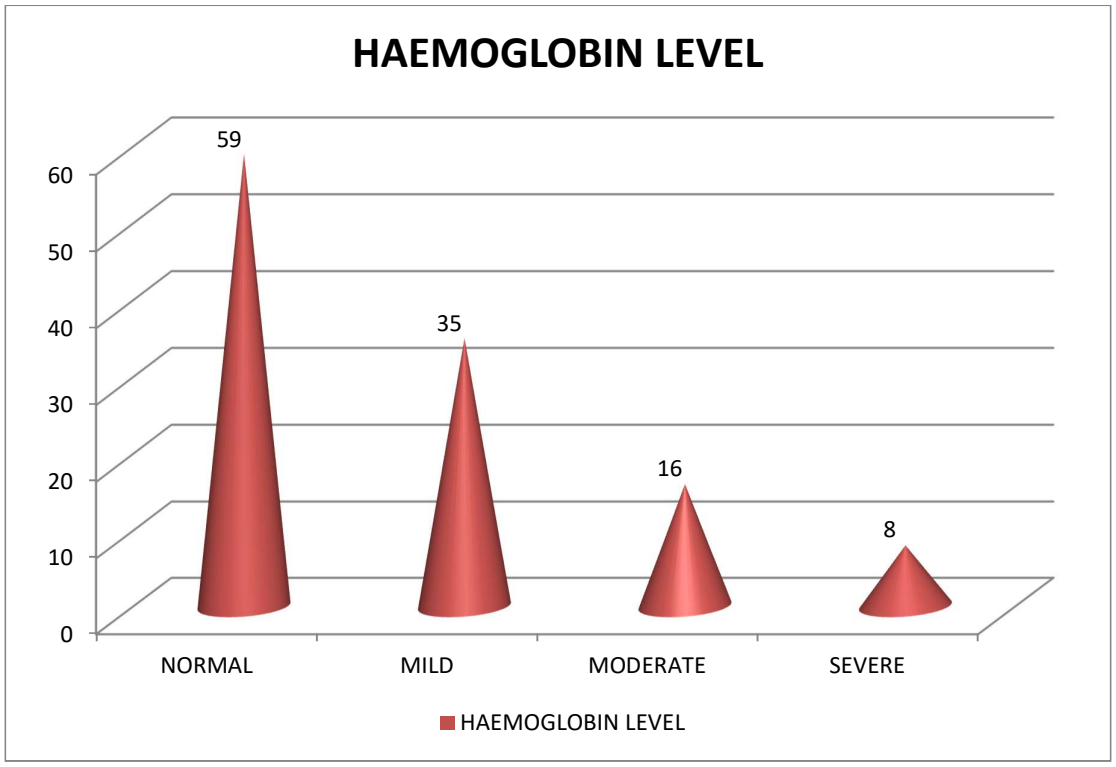


TABLE 10: ADOLESCENT GYNAECOLOGICAL PROBLEMS

DIAGNOSIS	NO OF PATIENTS	PERCENT
ABNORMAL UTERINE BLEEDING	47	39.8
DYSMENORRHEA	13	11
PCOS	24	20.3
OVULOVAGINITIS	7	5.9
GENITAL TB	1	0.8
PRIMARY AND SECONDARY AMENNORRHEA	7	5.9
OVARIAN TUMORS	13	9.3
CONGENITAL ANAMOLIES	3	2.5
UTI	3	2.5

In this study majoritiy of the adolescent girls found to have abnormal uterine bleeding 39.8% followed by Polycystic Ovarian Syndrome about 20.3% . Adolescent girls with dysmenorrhoea was about 11% followed by ovarian tumors of about 9.3%.

CHART 10: ADOLESCENT GYNAECOLOGICAL PROBLEMS

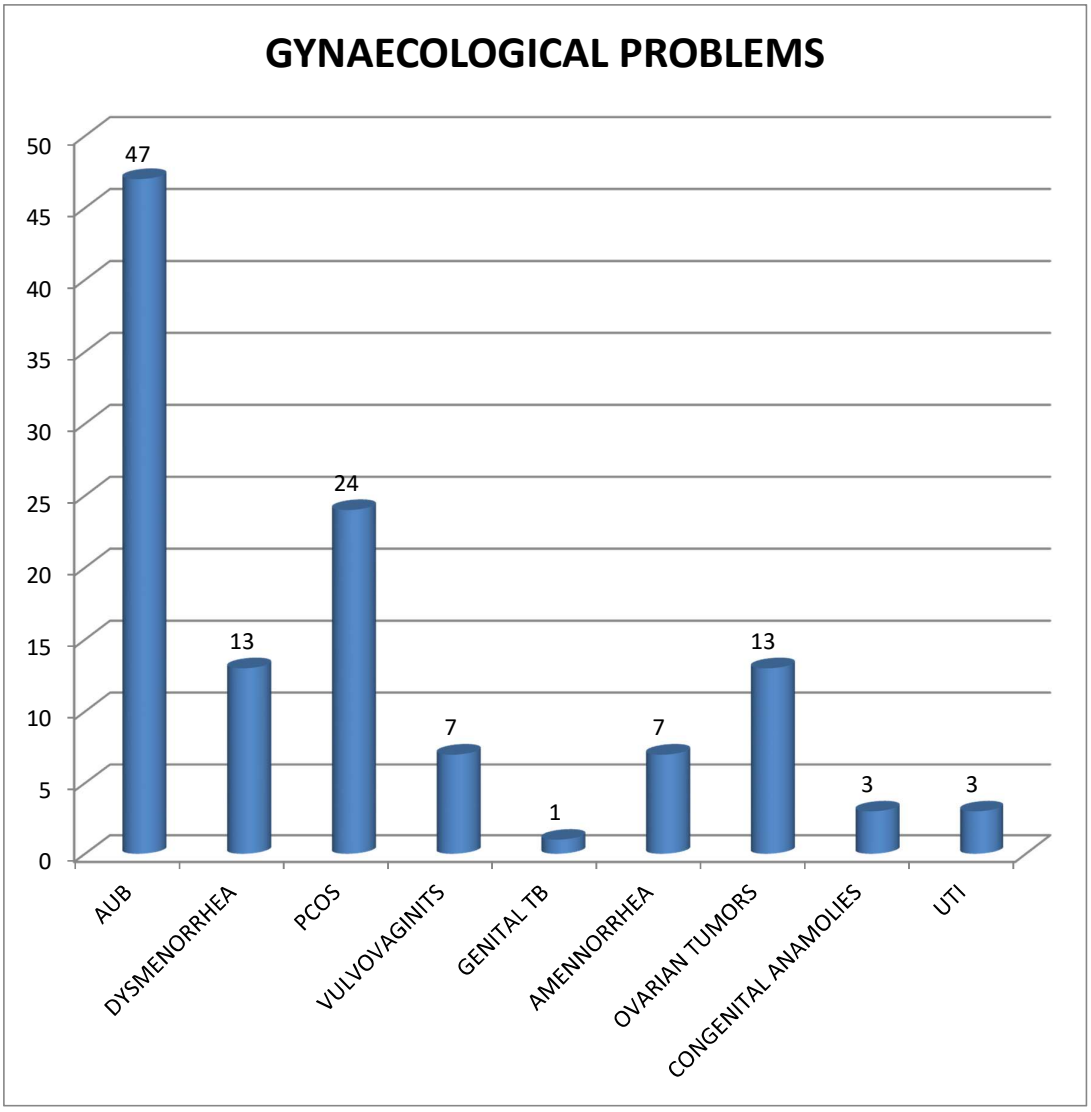


TABLE 11: ETIOLOGY OF AMENORHOEA

ETIOLOGY	NO. OF GIRLS	PERCENTAGE
DELAYED PUBERTY	4	57.1
HYPOTHYROIDISM	2	28.6
HYPERPROLACTINEMIA	1	14.3
TOTAL	7	100

The etiology of the most of the girls presented with amenorrhoea is due to delayed puberty followed by hypothyroidism.

CHART 11: ETIOLOGY OF AMENORHOEA

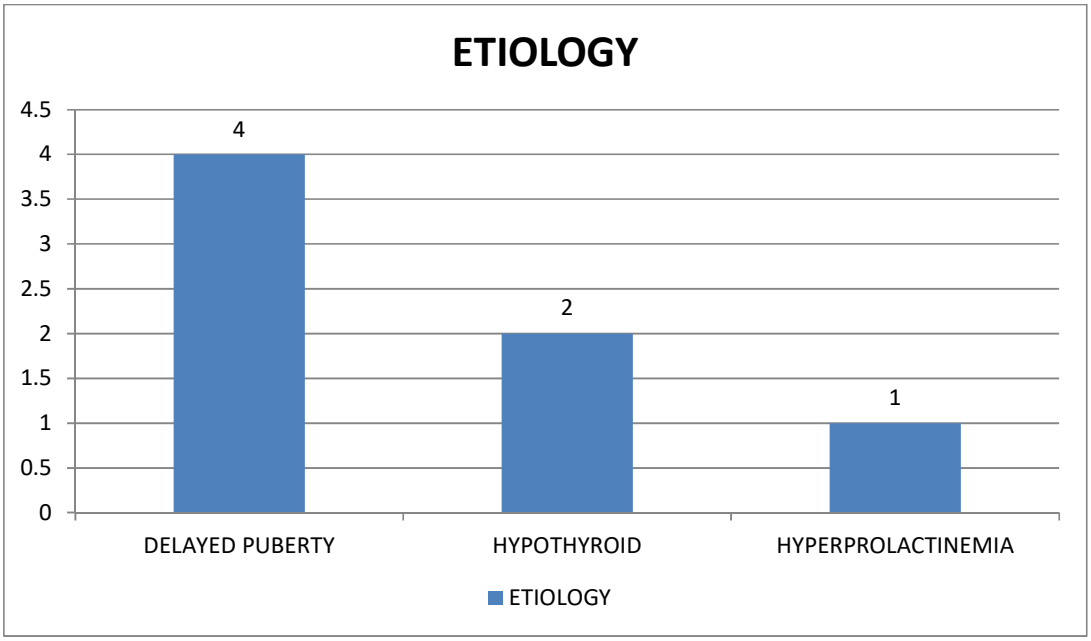


TABLE 12:CONGENITAL ANAMOLIES:

CONGENITAL ANAMOLIES	NO OF PATIENT	PERCENTAGE
IMPERFORATE HYMEN	1	33.33
MULLERIAN ANAMOLIE WITH CERVICAL STENOSIS	1	33.33
VAGINAL ATRESIA	1	33.33

In this study congenital anamolies was identified in 3 girls. A girl presented with imperforate hymen was treated by hymenotmy .vaginoplasty was done for the girl presented with vaginal atresia.Cervical dilatation was done for the girl with cervical stenosis.

TABLE 13:OVARIAN CYST AND TUMOR

OVARIAN TUMORS	NO OF PATIENTS	PERCENT
SIMPLE OVARIAN CYST	7	53.8
MALIGNANT OVARIAN TUMOR	6	46.2
TOTAL	13	100

Ovarian cyst and tumors was found in 13 girls.Out of this number of girls with simple ovarian cyst was 7(53.8%) and malignanat ovarian tumor was 6(46.2%).

CHART 13:OVARIAN CYST AND TUMOR

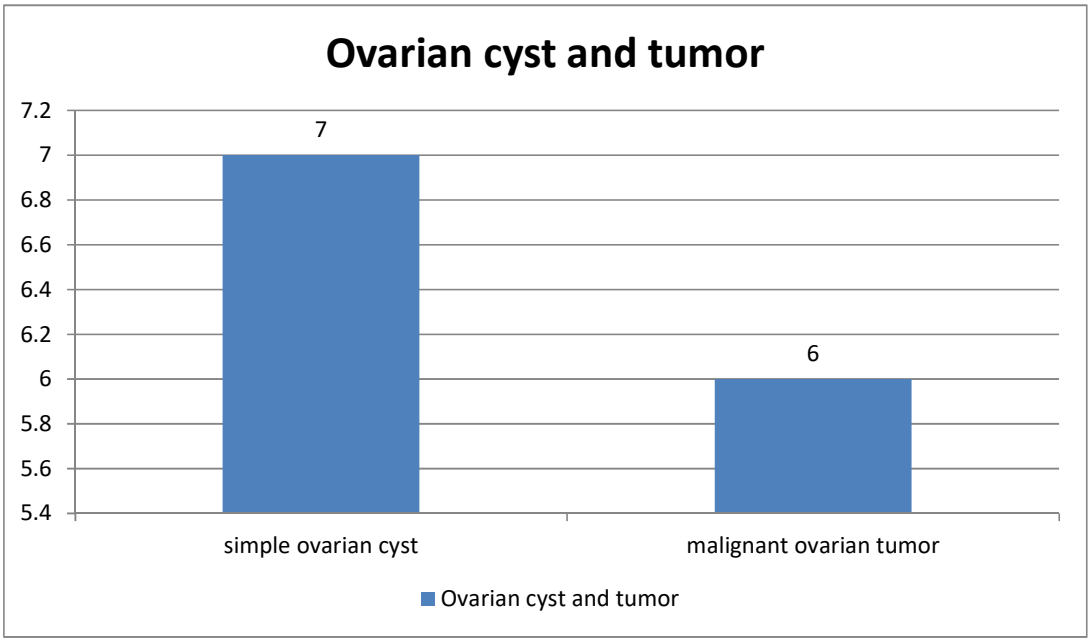


TABLE 14: TYPES OF MALIGNANTBOVARIAN TUMORS

TYPES OF MALIGNANT OVARIAN TUMOR	NO OF PATIENTS	PERCENT
GERM CELL TUMOR	3	50
SEROUS CYSTADENOMA	2	33.4
GRANULOSA CELL TUMOR	1	16.6
TOTAL	6	100

CHART 14: TYPES OF MALIGNANT TUMORS

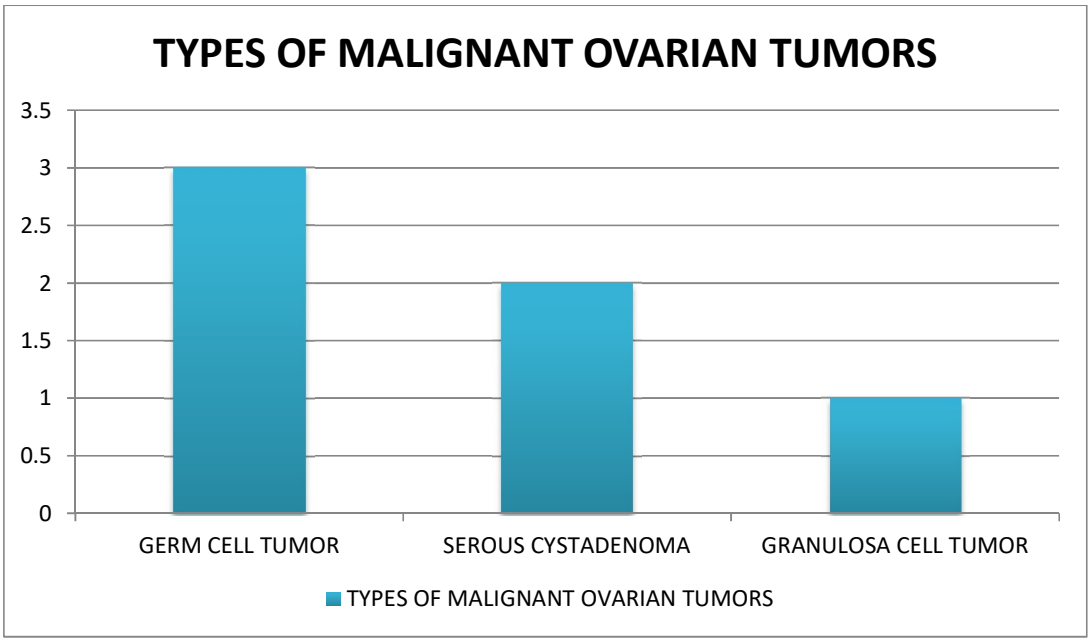


TABLE 16: TREATMENT FOR OVARIAN CYST

TYPE OF CYST AND TUMORS	TREATMENT GIVEN	NO OF PATIENT
SIMPLE OVARIAN CYST WITHOUT TORSION	CONSERVATIVE MANAGMENT AND FOLLOW UP	6
OVARIAN CYST WITH TORSION	EMERGENCY LAPOROTOMY	1
TOTAL		**7**

CHART 16: TREATMENT OF OVARIAN CYST

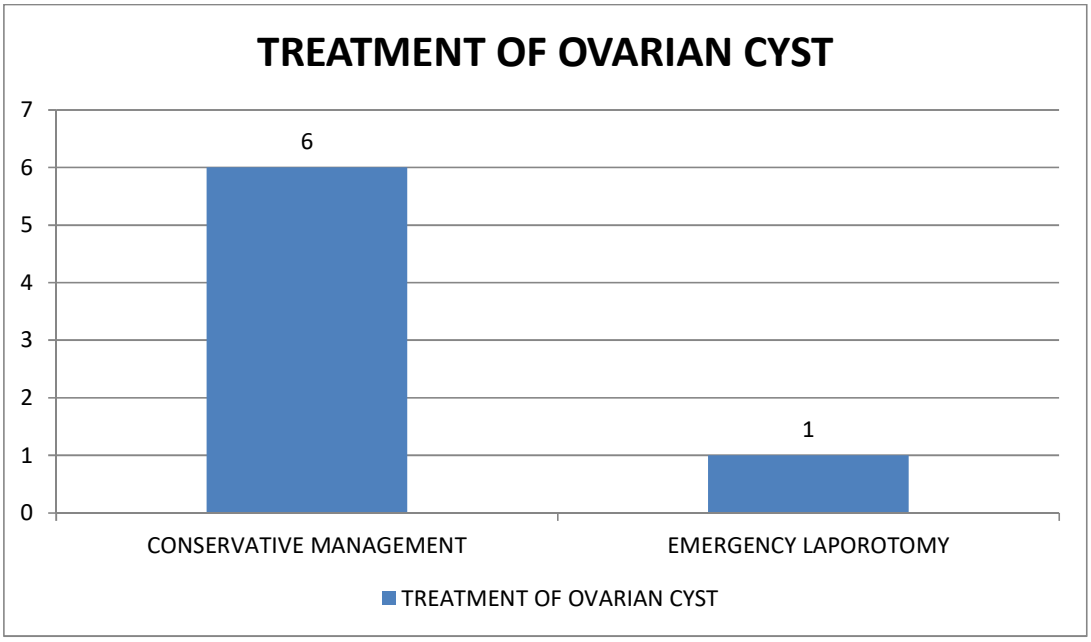


TABLE 17:TREATMENT OF MALIGNANT OVARIAN TUMORS

TYPE OF TUMOR	TREATMENT GIVEN	NO OF PATIENTS
SEROUS CYSTADENOMA	OVARIAN CYSTECTOMY AND FOLLOW UP	2
GERM CEL TUMOR	STAGING LAPOROTOMY FOLLOWED BY FERTILITY SPARING CYTOREDUCTIVE SURGERY AND CHEMOTHERAPY AND FOLLOW UP	3
GRANULOSA CELL TUMOR	CYTOREDUCTIVE SURGERY AND CHEMOTHERAPY AND FOLLOW UP	1
TOTAL		6

CHART 17:TREATMENT OF MALIGNANT OVARIAN TUMORS

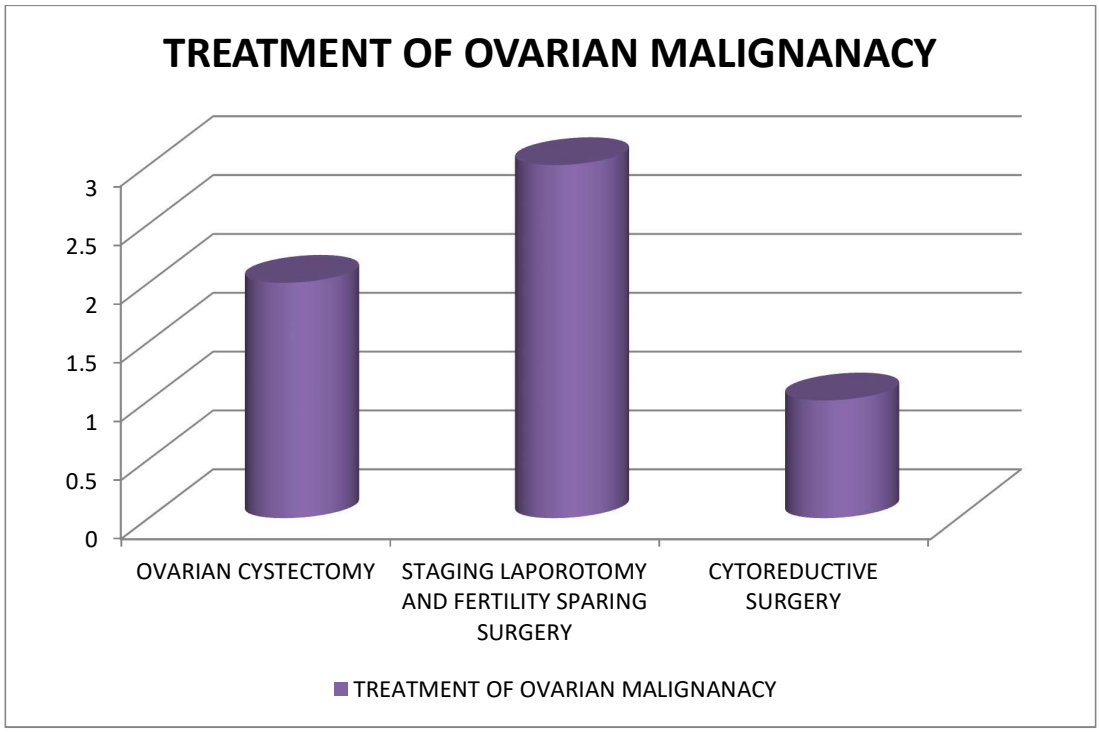
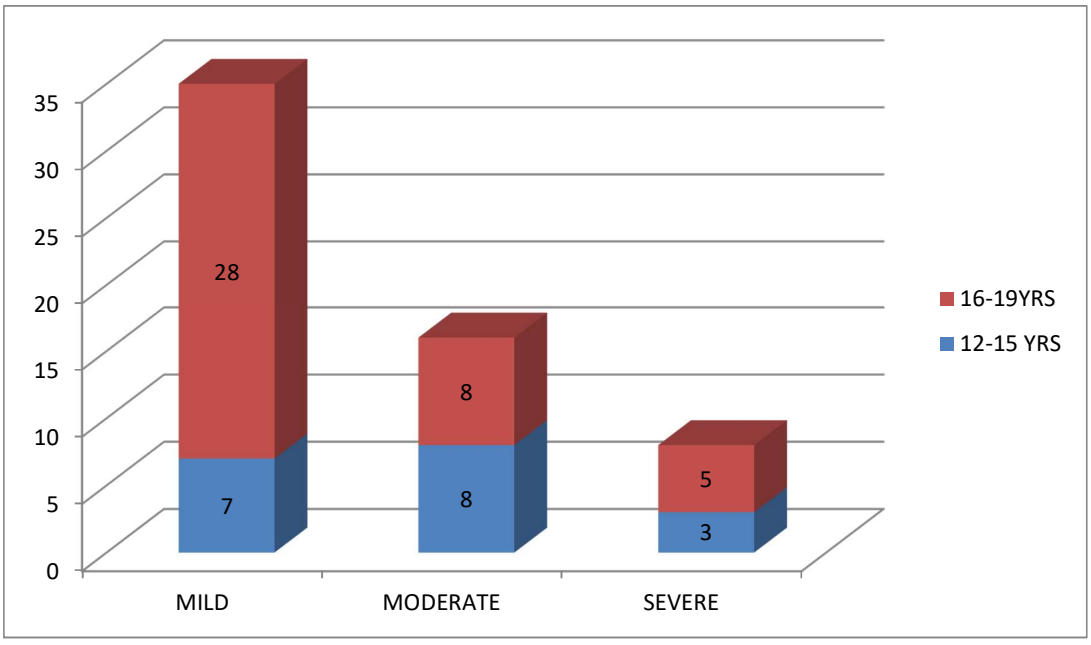


TABLE 18:ASSOCIATION OF AGE AND ANAEMIA

ANAEMIA	12-15 YRS		16-19 YRS	
	NO OF GIRLS	PERCENT	NO OF GIRLS	PERCENT
MILD	7	20%	28	80%
MODERATE	8	50%	8	50%
SEVERE	3	37.5%	5	62.5%

CHART 18:ASSOCIATION OF AGE AND ANAEMIA



In this study prevalence of anaemia is high in the age group of 16 to 19 years.

DISCUSSION

This study was conducted at RAJA MIRASUDHAR HOSPITAL ATTACHED TO THANJAVUR MEDICAL COLLEGE HOSPITAL THANJAVUR to assess the gynaecological problems for adolescent girls and their mode of management.

In the present study, maximum incidence of gynaecological problems was found in the age group of 19 years (29.7%) and next is 18 years(18.6%). Majority of the adolescent girls belonged to family of socio-economic status class IV(72.9%) and 59.3% girls are from urban areas.

In the present study ,Abnormal Uterine bleeding is the most commonest gynaecological problem encountered in the adolescent girls of 39.8%.

In the other study,

1.A profile of adolescent girls with gynaecological problems, 2004, Kolkatta.

Author – Goswami Sebanti, Dutta Rekha, Sengupta Sibani.

Incidence of AUB – 32.46%

2.Elmaoğullar et al study on Abnormal Uterine Bleeding in Adolescents (18) :

AUB accounts for half of the gynaecological problems in adolescents

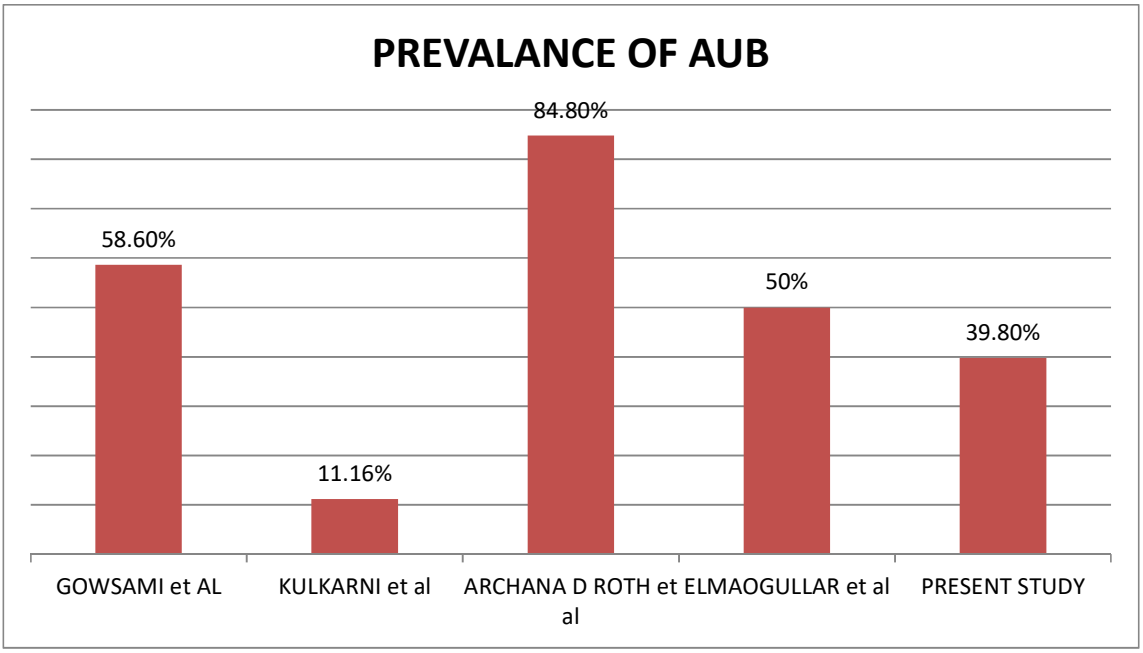
Anovulatory cycles, due to immature hypothalamic-pituitary-ovarian axis, is the leading etiology of AUB.

3.Archana d roth et all(2016) study on Gynecological Problems of Adolescent Girls Attending Outpatient Department at Tertiary Care Center with Evaluation of Cases of Puberty Menorrhagia Requiring Hospitalization(19)

Menstrual disturbances (84.88 %) were the commonest indication for OPD consultation among adolescent girls.

PREVALANCE OF AUB:

STUDY GROUP	PERCENT
GOWSAMI et al,2004	58.6%
kulkarni et al,2011	11.16%
ARCHANA D ROTH et al,2016	84.8%
Elmaogullar et al,2018	50%
Present study	39.8%



In the present study heavy menstrual bleeding is the most menstrual disturbances among the adolescent girls 32.2% followed by infrequent periods 31.4%. A study of Paediatric and adolescent gynaecology services in a tertiary teaching hospital states that Forty-four percent (44%) of referrals were menstrual disorders.(20)

PCOS is the one most common cause for menstrual disturbances.In the present study 20.3% adolescent girls are diagnosed with PCOS based on hyperandrogenism, mentual irregularity and ultrasound finding. The identification of hyperinsulinemia and insulin resistance in polycystic ovary syndrome (PCOS) is not a minor issue. (21)

PCOS was treated with life style modification, weight reduction and T.metformin. The most common treatments for PCOS patients were lifestyle modification (> 95%) and metformin (> 80%) (22)

Joshi et al. Reported reported that about 14% of adolescent girls diagnosed with PCOD(23) A systemic review and meta- analysis conducted at 2019 states that the prevalence of polycystic ovarian syndrome in adolescent girls based on the Rotterdam criteria was 11.04%.(24)

Ganie MA et al study on Epidemiology, pathogenesis, genetics & management of PCOS in India2019 - Prevalence of PCOS in India ranges from 3.7 to 22.5 per cent depending on the criteria used for diagnosis(25)

PREVELANCE OF PCOS:

STUDY GROUP	PERCENT
Joshi et al,2012	14%
GANIE et al,2019	3.7% to 22.5%
Present study	20.3%

In this present study adolescent girls presented with dysmenorrhea was about 11%.A study conducted at higher secondary school in Gwalior district states that 37.96%, suffered from severe dysmenorrhea . The three most common symptoms present on the day before and first day of menstruation are tiredness and lethargy , depression and inability to concentrate in their work.(26). A cross sectional study conducted to identifiy the prevelance of dysmenorrhea in france states that the prevalence of dysmenorrhea was 92.9% with 8.9% describing severe pain which had significant Impact on quality of life. About 43.3% of school absences because of dysmenorrhea1 (27)

KABUKU C et al study of primary dysmenorrhea states that(49.8%) adolescents having dysmenorrhea that affects daily activities during menstruation. (28))

In our study adolescent girls presented with primary and secondary amennorhoea was 5.9%.Most common etiology is delayed puberty followed by hypothyroidism.The adolescent girls presented with congenital anamolies was 2.5%(3/118).Two girl presented with delayed puberty diagnosed as imperforate hymen , another one with vaginal atresia.Another girl attained menarche presented with abdominal pain evaluated and diagnosed as congenital mullerian anamoly uterus didelphus with cervical stenosis.

Imperforate hymen presented with hematocolpos Hymenectomy was done. Vaginoplasty done for vaginal atresia.Uterus didelphus with one side cervical stenosis managed by cervical dilatation. Reasurrance was given for the girls presented with delayed puberty.Thyroid supplementation was given for girls presented with ameborrhoea due to hypothyroid.

Ovarian cancer is the 7th leading cancer among women and it is the 8th leading cause of cancer mortality among women.From this study number of adolescent girls presented with ovarian tumors are 13/118 (9.3%)

- simple ovarian cyst -53.8%

  Simple ovarian cyst without torsion was managed conservatively.Torsion ovarian cyst presented with acute abdomen was managed by emergency laporotomy with ovarian cystectomy.

- Malignant ovarian tumors-46.2%

  Serous cystadenoma- ovarian cystectomy and follow up

  Granulosa cell tumor and germ cell tumor- Cytoreduction surgery and chemotherapy and follow up

The American Cancer Society provides an overview occurrence of ovarian cancer based on data from nationwide population-based cancer registries and mortality data from the National Center for Health Statistics.They also reviewed the benefits of early detection. Torre et all conducted study Ovarian cancer statistics conclude that overall ovarian

cancer incidence declined by 29% from 1985 (16.6 per 100,000) to 2014 (11.8 per 100,000), while mortality declined by33% . Ovarian cancer is a heterogenous group of malignancies that vary in etiology, molecular biology, and numerous other characteristics,(29)Based on WHO guideline, adolescents **with hemoglobin level is less than 12mg/dl are said to be anaemic.**

In this study estimation of haemoglobin was done to identify the incidence of anaemia in the adolescent girl. In our study incidence of anaemia was 50.17%.out of this 29.7% of girls suffering from mild anamia.13.6% are suffering from moderate anaemia followed by 6.8% had severe anaemia(8/118).Adolescents girls with severe anaemia are admitted and treated with blood transfusion.

In India the prevalence of anaemia among adolescent girls were 56% and this amounts to an average 64 million girls at any point in time (30)

SUMMARY

- Maximum numbers adolescent girls presented with gynaecological problems was seen in the age group of 19 years and most of them are studying in college.
- maximum number of adolescent girls in our study belong to socio economic class IV (Upper lower)
- Girls from urban population is maximum in this study group.
- Mentural disturbances was the most common presenting complaint in the adolescent girls.
- Maximum number of adolescent girls in the study group belongs to normal body mass index followed by overweight.
- Abnormal uterine bleeding(39.8%) was the most common adolescent gynaecological problem in this study.
- Heavy flow was the most common menstrual irregularity in the adolescent girls in this study.
- 50% of adolescent girls in the study group are anaemic and 6.8% of adolescent girls with severe anaemia was treated with blood transfusion.
- 20.3% of adolescent girls was diagnosed as polycystic ovarian syndrome. Most of them are presented with complaint of infrequent cycles followed by heavy flow.

- Dysmenorrhea was the third most common gynaecological problem observed in the study.
- Vulvovaginits was diagnosed in 5.9% of girls in this study. Most of them are married teenage girls.
- Delayed puberty was the most common cause for primary amennorhoea.
- Hypothyroidism next most common cause for primary amennorhoea.
- 9.3% of adolescent girl in the study was diagnosed with simple ovarian cyst and malignant ovarian tumor.
- Simple ovarian cyst more common than malignant ovarian tumor.
- Congenital anamolies was diagnosed in 2.5% of adolescent girls in the study.
- Genital tuberculosis was diagnosed in a girl who presented with infrequent cycles and abdominal pain.

CONCLUSION

Adolescence in girls has been regonised as a special phase in their life. It requires a specific approach and special attention. This period of transition makes them vulnerable to various problems. This period in a girl's life is the preparation for safe motherhood. These adolescent girls are the direct reproducer for the future generation. So, **the health of these girls not only influences her own health but, also the health of future generation**.

Abnormal Uterine Bleeding most common adolescent gynaecological problem. Heavy menstrual bleeding severely affects the quality of life in adolescent girls.

Effective management of heavy menstrual bleeding is mandatory to avoid anaemia in the adolescent girls. As adolescent girls are the direct reproducer of future generation it is utmost import to avoid anaemia in adolescent which in long run reduce the maternal and perinatal morbidity and mortality. A empathetic, friendly behaviour nonjudgemental attitude and special attention should be given to the adolescent population.

This was achieved by ADOLESCENT FRIENDLY HEALTH CLINICS and various health programmes implemented like RASHTRIYA KISHOR SWASTHYA KARAYAKRAM for efficient management so that they can develop as healthy parents in future and became a responsible citizens of tomorrow.

ANNEXURES

BIBLIOGRAPHY

1. World Population Prospects: The 2012 Revision, United Nations Population Division)
2. Tanner JM, Growth at Adolescence. 2nd ed, Blackwell Scientific Publications, Oxford, 1962
3. Female reproductive disorders: the roles of endocrine-disrupting compounds and developmental timing, Fertil Steril 90:911, 2008)
4. Marshall WA, Tanner JM, Variations in pattern of pubertal changes in girls, Arch Dis Child 44:291, 1969
5. *Heavy Menstrual Bleeding*. Excellence NIfHaC, editor. United Kingdom:
6. National Institute for Health and Clinical Excellence; 2007.,2. Heavy menstrual bleeding: Assessment and management (NG88).London; 2018)
7. APGO educational series on women's health issues. Clinical management of abnormal uterine bleeding
8. Rathod AD, Chavan RP, Pajai SP, Bhagat V, Thool P. Gynecological Problems of Adolescent Girls Attending Outpatient Department at Tertiary Care Center with Evaluation of Cases of Puberty Menorrhagia Requiring Hospitalization. *J Obstet Gynaecol India*. 2016;66(Suppl 1):400-406. doi:10.1007/s13224-015-0770-1)

9. Gillani S, Mohammad S. Puberty menorrhagia: causes and management. *J Med Sci (Peshawar, print)* 2012;20(1):15–18. [Google Scholar
10. Bleeding disorders in teenagers presenting with menorrhagia. *Jayasinghe Y, Moore P, Donath S, Campbell J, Monagle P, Grover S Aust N Z J Obstet Gynaecol. 2005 Oct; 45(5):439-43.*[PubMed] [Ref list])
11. Lobo RA, Gershenson DM, Lentz GM, Valea FA. Comprehensive gynecology E-book: Elsevier Health Sciences; 2016
12. %.(Agarwal AK, Agarwal A. A study of dysmenorrhea during menstruation in adolescent girls. *Indian J Community Med*. 2010;35(1):159-164. doi:10.4103/0970-0218.62586
13. Hong Ju, Mark Jones, Gita Mishra, The Prevalence and Risk Factors of Dysmenorrhea, *Epidemiologic Reviews*, Volume 36, Issue 1, 2014, Pages 104–113
14. .. researchRevised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome.*Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group.Fertil Steril. 2004 Jan; 81(1):19-25.*[PubMed] [Ref list])
15. Rocha AL, Oliveira FR, Azevedo RC, et al. Recent advances in the understanding and management of polycystic ovary

syndrome. *F1000Res*. 2019;8:F1000 Faculty Rev-565. Published 2019 Apr 26. doi:10.12688/f1000research.15318

16. Pasquali R, Stener-Victorin E, Yildiz BO, et al. PCOS Forum: research in polycystic ovary syndrome today and tomorrow. *Clin Endocrinol (Oxf)*. 2011;74(4):424-433. doi:10.1111/j.1365-2265.2010.03956.x
17. can we preoperatively risk stratify ovarian masses malignancy J pediat surg 2010; 45(1):130-134
18. J Clin Res Pediatr Endocrinol. 2018 Jul 31;10(3):191-197. doi: 10.4274/jcrpe.0014. Epub 2018 Feb 28. PMID: 29537383; PMCID: PMC6083466.)
19. Rathod AD, Chavan RP, Pajai SP, Bhagat V, Thool P. Gynecological Problems of Adolescent Girls Attending Outpatient Department at Tertiary Care Center with Evaluation of Cases of Puberty Menorrhagia Requiring Hospitalization. *J Obstet Gynaecol India*. 2016;66(Suppl 1):400-406. doi:10.1007/s13224-015-0770-1
20. Menic N, Jha S. Paediatric and adolescent gynaecology services in a tertiary teaching hospital. J Obstet Gynaecol. 2021 Oct;41(7):1087-1091. doi: 10.1080/01443615.2020.1821617. Epub 2020 Nov 25. PMID: 33236971
21. Fulghesu AM, Piras C, Dessì A, Succu C, Atzori L, Pintus R, Gentile C, Angioni S, Fanos V. Urinary Metabolites Reveal Hyperinsulinemia and

Insulin Resistance in Polycystic Ovarian Syndrome (PCOS). Metabolites. 2021 Jul 2;11(7):437. doi: 10.3390/metabo11070437. PMID: 34357331; PMCID: PMC8307496

22. Ma R, Zou Y, Wang W, Zheng Q, Feng Y, Dong H, Tan Z, Zeng X, Zhao Y, Deng Y, Wang Y, Sun A. Obesity management in polycystic ovary syndrome: disparity in knowledge between obstetrician-gynecologists and reproductive endocrinologists in China. BMC Endocr Disord. 2021 Sep 6;21(1):182. doi: 10.1186/s12902-021-00848-w. PMID: 34488736; PMCID: PMC8422662
23. Joshi S, Chella H, Shrivastava D. Study of puberty menorrhagiain adolescent girls in rural set up. J South Asian Feder Obstet Gynae. 2012;4(2):110–2)
24. Naz MSG, Tehrani FR, Majd HA, Ahmadi F, Ozgoli G, Fakari FR, Ghasemi V. The prevalence of polycystic ovary syndrome in adolescents: A systematic review and meta-analysis. Int J Reprod Biomed. 2019 Sep 3;17(8):533-542. doi: 10.18502/ijrm.v17i8.4818. PMID: 31583370; PMCID: PMC6745085.).
25. Agarwal AK, Agarwal A. A study of dysmenorrhea during menstruation in adolescent girls. *Indian J Community Med*. 2010;35(1):159-164. doi:10.4103/0970-0218.6258

26. Ganie MA, Vasudevan V, Wani IA, Baba MS, Arif T, Rashid A. Epidemiology, pathogenesis, genetics & management of polycystic ovary syndrome in India. Indian J Med Res. 2019 Oct;150(4):333-344. doi: 10.4103/ijmr.IJMR_1937_17. PMID: 31823915; PMCID: PMC6902362

27. Hadjou OK, Jouannin A, Lavoue V, Leveque J, Esvan M, Bidet M. Prevalence of dysmenorrhea in adolescents in France: Results of a large cross-sectional study. J Gynecol Obstet Hum Reprod. 2021 Dec 30;51(3):102302. doi: 10.1016/j.jogoh.2021.102302. Epub ahead of print. PMID: 34973478

28. Kabukçu C, Kabukçu Başay B, Başay Ö. Primary dysmenorrhea in adolescents: Association with attention deficit hyperactivity disorder and psychological symptoms. Taiwan J Obstet Gynecol. 2021 Mar;60(2):311-317. doi: 10.1016/j.tjog.2021.01.033. PMID: 33678333

29. Torre LA, Trabert B, DeSantis CE, Miller KD, Samimi G, Runowicz CD, Gaudet MM, Jemal A, Siegel RL. Ovarian cancer statistics, 2018. CA Cancer J Clin. 2018 Jul;68(4):284-296. doi: 10.3322/caac.21456. Epub 2018 May 29. PMID: 29809280; PMCID: PMC6621554).

30. Aguayo VM, Paintal K, Singh G. The adolescent girls' anaemia control programme: a decade of programming experience to break the inter-generational cycle of malnutrition in India. Public Health Nutr. 2013;16(9):1667–76

PROFORMA

PROSPECTIVE OBSERVATIONAL STUDY OF ADOLESCENT GYNAECOLOGICAL PROBLEMS IN GRMH

- Name :
- Rural/urban:
- Age :
- OP/IP No. :
- Educational Status :
- Socioeconomic status:
- Marital status

- **CHIEF COMPLAINTS** :

(A) Menstrual Abnormalities :

- Amenorrhoea
- increased flow
- frequent periods
- scanty flow
- infrequent menstrual periods

(B) Dysmenorrhoea

(C) Lower Abdominal Pain

(D) Leucorrhoea

(E) Abdominal Mass

(F) Pre Menstrual Syndrome

(G)UTI

(H) Others

MENSTRUAL HISTORY :

- Age of Menarche
- LMP
- Duration of Cycles
- Amount of Bleeding
- Number of Pads / Clothes used per day
- Premenstrual symptoms if any

Past history

Personal history

Family history

GENERAL EXAMINATION

Height : Weight : BMI:

Thyroid Examination

Breast Examination

Secondary Sexual Characters

SYSTEMIC EXAMINATION

CVS RS CNS

P/A

EXTERNAL GENITALIA EXAMINATION

P/R

P/V (if needed)

INVESTIGATIONS

ULTRASOUND

PROVISIONAL DIAGNOSIS:

நோயாளிகளுக்கான தகவல் படிவம்

மரு.இரா.பிரபா ஆகிய நான் அரசு ராஜா மிராசுதார் மருத்துவமனையில் மகப்பேறியல் மற்றும் பெண் நோயியல் துறையில் முதலாம் ஆண்டு பட்டமேற்படிப்பு பயின்று வருகின்றேன்.நான் வளர் இளம்பெண்களுக்கு ஏற்படும் பெண் நோயியல் பிரச்சனைகள் குறித்து விளக்கவுரை ஆய்வு (Prospective Observational study of Adolescent Gynecological problems in a tertiary care centre) செய்து வருகின்றேன்.இந்த விளக்கவுரை நம் பகுதியில் உள்ள வளர் இளம்பெண்களுக்கு ஏற்படும் பல்வேறு விதமான பெண் நோயியல் சம்பந்தமான பிரச்சனைகளை கண்டறிதல் மற்றும் அதுசமயம் அதனை குணப்படுத்த மேற்கொள்ளப்படும் பல்வேறு விதமான நடவடிக்கைகள் மற்றும் சிகிச்சைகள் குறித்து ஆய்வு மேற்கொள்ளப்படுகின்றது.இந்த ஆய்வின் போது கேள்வித்தொடருக்கு பதில் அளித்தல், ஆய்வக மற்றும் மருத்துவப் பரிசோதனைகள், அல்ட்ராசவுண்ட் இமேஜிங் போன்ற பரிசோதனைகள் தங்களுக்கு மேற்கொள்ளப்படும். தாங்கள் இந்த விளக்கவுரை ஆய்வில் பங்கேற்பதன் மூலம் நம் சுற்றுவட்டாரப் பகுதிகளில் பொதுவாக வளர் இளம்பெண்களுக்கு ஏற்படும் பல்வேறு விதமான பெண் நோயியல் சம்பந்தமான பிரச்சனைகளை கண்டறிதல் மற்றும் பல்வேறு விதமான சிகிச்சைகள் குறித்து ஆராய்ந்து மேலும் அதனை மேம்படுத்த பேருதவி புரிவதுடன் தங்களுக்கும் பெண் நோயியல் சம்பந்தமான பிரச்சனைகள் மற்றும் குறைபாடுகள் ஏதேனும் உள்ளனவா என்பதனை ஆரம்ப நிலையிலேயே கண்டறிவதுடன் அதற்கு மேற்கொள்ளவேண்டிய நடவடிக்கைகள் மற்றும் சிகிச்சைகள் முறையாக செய்ய வழிவகை செய்யப்படும். இதனால் தங்களுக்கும் ஆரோக்யம் உறுதி செய்யப்படும். மேலும் இதுவிடயம் மேலே கூறப்பட்ட ஆய்வில் தங்களை உட்படுத்திக்கொள்வதனால் யாதொரு பாதிப்பும் ஏற்படாது என்பதனை தெரிவித்துக்கொள்கின்றேன்.

மரு.இரா.பிரபா.
மகப்பேறியல் மற்றும் பெண் நோயியல் துறையில்
முதலாம் ஆண்டு பட்டமேற்படிப்பு மாணவி, (9487997248)
அரசு ராஜா மிராசுதார் மருத்துவமனை,
தஞ்சாவூர் மருத்துவக் கல்லூரி,தஞ்சாவூர்.

பங்கேற்பவரின் ஒப்புகை படிவம்

பங்கேற்பவரின் பெயர்:

முகவரி :

விளக்கவுரை ஆய்வின் தலைப்பு:

வளர் இளம்பெண்களுக்கு ஏற்படும் பெண் நோயியல் பிரச்சனைகள் குறித்த வருங்கால கண்காணிப்பு ஆய்வு(Prospective observational study of Adolescent Gynaecological problems in a tertiary care centre)

இந்த விளக்கவுரை ஆய்வு குறித்த அத்துனை விடயங்களும், விளக்கங்களும் எனக்கு எழுத்துப்பூர்வமாகவும், வாய்மொழியாகவும் எனது தாய் மொழியில் நன்கு விளக்கி கூறப்பட்டது. மேலே கூறப்பட்ட விளக்கவுரை ஆய்வு குறித்து நான் நன்கு புரிந்துகொண்டேன் என்று உறுதி அளிக்கின்றேன்.மேலும் நான் இந்த விளக்கவுரை ஆய்வில் தன்னார்வத்தின் பேரில் யாருடைய கட்டாயமும் இன்றி கலந்துகொள்கின்றேன்.பின்வரும் காலங்களில் நான் இந்த விளக்கவுரை ஆய்வில் இருந்து எனக்கு முறையே கிடைத்து வரும் சிகிச்சைகள் எவையும் பாதிக்காவண்ணம் எப்பொழுது வேண்டுமானாலும் சொந்தவிருப்பத்தின் பேரில் எந்த காரணமும் இன்றி விளகிக்கொள்ளலாம் என்பதனையும் நான் அறிவேன். இந்த ஆய்வில் கிடைக்கும் தகவல்கள் மற்றும் முடிவுகளை அறிவியல் சார்ந்த ஆய்விற்கு பயன்படுத்திக்கொள்ள நான் எந்த வகையிலும் தடை செய்ய மாட்டேன் என்றும் இந்த விளக்கவுரை ஆய்வு குறித்த நோயாளிகளுக்கான தகவல் படிவம் எனக்கு கொடுக்கப்பட்டது என்றும் இந்த ஆய்வில் என்னை ஈடுபடுத்திக்கொள்ள என்னுடைய பரிபூரண இசைவையும் ஒப்புதலையும் அளிக்கின்றேன்.

பங்கேற்பாளர் / பெற்றோர் கையொப்பம்:

தேதி:

சாட்சியாளர் கையொப்பம்:

தேதி:

ஆய்வாளர் கையொப்பம் :

தேதி:

KEY TO MASTER CHART

1. Age Group in years

1 _ 13 – 15 years

2 _ 16 – 19 years

2. Educational status

1 _ Primary

2 _ Secondary

3 _ Higher Secondary

4_college

3. Socio economic Status

3 _ Class III

4 _ Class IV

5 _ Class V

4. Localities

1 _ Urban

2 _ Rural

5. Body Mass Index (BMI)

1 _ _ 19 (Under weight)

2 _ 20 – 24 (Normal)

3 _ 25 – 29 (over weight)

4 _ 30 – 34 (Obese)

5 _ _ 35 (Morbid obesity)

6. Complaints

1-amenorrhoea

2-frequent periods

3-infrequent menstrual periods

4 - heavy flow

5- light flow

6-Pain during mensturation

7-lower abdominal pain

8 - White discharge p/v

9- abdominal mass

7. Goitre

1 - Present

2 – Absent

8. Hirsution

1 _ Present

2 _ Absent

9. Hb%

1 _ Normal (_ 12 gm %)

2 _ Mild (11.0 - 11.0 gm %)

3 _ Moderate (8.1 – 10.9)

4 _ Severe (< 7 gm %)

10. USG

0 _ Not done

1 _ Normal

2 _ PCOS

3 _ simple ovarian cyst

4-Tuboovarian mass

5_congenital anamolies

11. TSH

1 _ Normal

2 _ High

12. PL

0 _ Not done

1 _ Normal

2 _ High

13. LH

0-Not done

1 _ Normal

2 _ High

14. Diagnosis

1 _ Abnormal uterine bleeding

2 _ Dysmenorrhoea

3 _ PCOS

4 _ vulovaginitis

5 _ abdominal TB

6 _ Primary amennorhoea

7_OVARIAN TUMORS

7A-simple ovarian cyst

7b_malignant ovarian tumors

8-congenital anamolies

9-Others

MASTER CHART

sno	NAME	OPIPNO	AGE	AGE-G	EDN	SES	LOCALITY	BMI	Com.1	Com.2	Com.3	Com.4	Com.5	Com.6	Com.7	Com.8	Com.9	GOITRE	HIRSUTIS	HB	USG	TSH	PL	LH	DIAGNOSIS
1	senthamilselvi	30783	17	2	3	3	1	3			1							2	1	1	2	1	0	0	3
2	abinaya	86477	14	1	2	4	2	2	1									2	2	1	1	1	1	1	6
3	vaishnavi	86477	18	2	4	4	1	2						1				2	2	1	1	1	0	0	2
4	priya	682492	19	2	4	4	1	2			1							2	2	1	2	2	0	0	3
5	subulakshmi	477437	19	2	3	3	1	2					1		1			2	2	1	1	1	0	0	7a
6	anjuga	865884	16	2	3	4	1	2				1		1				2	2	2	1	1	0	0	2
7	sneha	866234	18	2	3	4	2	2			1							2	2	1	1	1	0	0	3
8	sivanandhini	24660	17	2	3	5	1	2					1					2	2	1	3	1	0	0	9
9	beviufana	866710	16	2	3	3	1	3			1							2	2	1	1	1	0	0	3
10	piramasthani	428828	18	2	2	4	2	3				1						2	2	1	1	1	0	0	3
11	sneha	81234	18	2	3	4	1	4			1							2	1	1	2	1	0	0	1
12	nivedha	86715	15	1	2	3	2	3				1						2	2	4	1	2	0	0	2
13	darshini	86419	16	2	2	4	1	2	1						1			2	2	1	1	1	2	0	6
14	sushmitha	86231	16	2	2	4	2	3				1						2	2	4	1	2	0	0	2
15	abirami	402305	17	2	3	3	2	2			1							2	2	2	1	1	0	0	1
16	bavani	56549	15	1	2	4	1	3	1						1			2	2	1	1	2	1	1	6
17	fathimabevi	12523	14	1	3	3	2	3				1						2	2	1	1	1	0	0	2
18	bhoomika	870639	19	2	4	3	1	2							1			2	2	1	1	1	0	0	9
19	nisha	870938	19	2	4	4	1	2		1		1						2	2	3	1	1	0	0	2
20	mahalakshmi	815431	19	2	3	4	1	2			1							2	1	1	2	2	0	0	3
21	mahaeshni	872322	17	2	3	3	2	2				1						2	2	3	1	1	0	0	2
22	priyadharshini	872296	12	1	2	4	1	2							1			2	2	1	2	1	0	0	7a
23	elakkiya	872536	16	2	3	4	1	2				1			1			2	2	2	1	1	0	0	2
24	sheeba	872597	19	2	4	4	2	3				1						2	2	3	1	1	0	0	1
25	anushiya	872781	14	1	2	4	1	2		1		1						2	2	4	1	2	0	0	1
26	bhavani	54627	19	2	4	4	1	4			1							2	2	1	1	1	0	0	1
27	murugeshwari	146702	15	1	3	3	2	2			1							2	2	1	2	2	0	0	3
28	nishanthini	866729	19	2	4	4	1	2			1							2	2	2	1	2	0	0	1
29	ragasiya	874039	13	1	2	4	2	2			1							2	2	2	1	1	0	0	1
30	tamilarasi	874441	18	2	4	4	2	3					1					2	2	2	1	1	0	0	1
31	muthulakshmi	572992	14	1	2	4	1	2			1							2	2	1	1	1	0	0	1
32	abitha	874281	19	2	4	4	1	3			1							2	2	1	2	2	0	0	3
33	mahalakshmi	876088	13	1	2	3	2	2			1							2	2	3	2	1	0	0	1
34	priyanka	876142	16	2	3	4	2	2						1				2	2	1	1	1	0	0	2
35	abinaya	876139	19	2	4	4	1	2			1							2	2	2	1	2	0	0	1
36	vijayasanthi	867194	18	2	4	4	2	2			1							2	2	2	2	1	0	0	3
37	abi	877592	15	1	2	5	2	2				1						2	2	4	1	1	0	0	1
38	sneha	878496	19	2	4	4	2	2								1		2	2	2	1	1	0	0	4
39	brindha	878723	13	1	2	4	2	1				1						2	2	3	1	1	0	0	1
40	jothika	880542	19	2	4	3	2	3							1			2	2	1	1	1	0	0	4

sno	NAME	OPIPNO	AGE	AGE-G	EDN	SES	LOCALITY	BMI	Com.1	Com.2	Com.3	Com.4	Com.5	Com.6	Com.7	Com.8	Com.9	GOITRE	HIRSUTIS	HB	USG	TSH	PL	LH	DIAGNOSIS
41	ramya	880623	18	2	4	4	2	3			1							2	2	2	2	1	0	0	3
42	gowri	881472	17	2	4	3	1	4			1							2	2	2	2	2	0	0	1
43	ashwini	882159	14	1	2	4	1	2				1						2	2	3	1	2	0	0	1
44	gayathri	23610	18	2	4	4	2	3				1						2	2	2	1	1	0	0	2
45	anushiya	872701	14	1	3	4	2	2				1						2	2	2	1	1	0	0	1
46	madhubala	881763	19	2	4	4	2	3			1							2	1	2	2	1	0	0	3
47	amirtharani	883571	13	1	2	4	2	2	1									2	2	2	1	2	1	1	6
48	thilagavathy	884171	18	2	4	4	2	3		1								2	2	1	1	1	0	0	4
49	nandhini	884179	19	2	4	3	2	2			1							2	2	2	1	2	0	0	1
50	chithra	881763	19	2	4	4	2	3			1							2	2	1	2	1	0	0	3
51	subasri	885511	13	1	2	4	2	2								1		2	2	1	1	1	0	0	4
52	selvapriya	885930	18	2	4	4	1	3						1				2	2	1	1	1	0	0	2
53	rajalakshmi	885997	18	2	3	3	1	2			1							2	1	2	2	1	0	0	3
54	kaveri	886107	19	2	4	4	2	3				1						2	2	3	1	1	0	0	1
55	senofarbegum	887657	19	2	4	4	2	2				1						2	2	2	1	1	0	0	1
56	poojajosni	888140	13	1	2	4	2	2	1						1			2	2	2	1	1	1	1	6
57	banu	887658	19	2	4	4	1	4			1							2	2	1	2	2	0	0	3
58	ashwini	882701	14	1	2	5	1	2				1			1			2	2	3	1	1	0	0	1
59	varshini	884787	13	1	2	4	2	2				1						2	2	2	1	1	0	0	1
60	pavithra	891096	15	1	3	4	2	2								1		2	2	1	1	1	0	0	4
61	selvanayagi	891548	19	2	4	4	2	2				1						2	2	3	1	1	0	0	1
62	mirsha	891991	14	1	3	3	2	1			1							2	1	2	2	1	0	0	3
63	vijayalakshmi	891993	16	2	3	4	1	3							1			2	2	2	2	1	0	0	3
64	punitha	892650	13	1	2	4	2	2				1						2	2	1	1	1	0	0	1
65	rajakumari	892824	19	2	4	4	2	3						1				2	2	1	1	1	0	0	2
66	karthiga	895195	19	2	4	3	2	2					1					2	2	1	1	2	0	0	1
67	preetha	878723	13	1	2	4	2	2				1						2	2	2	1	1	0	0	1
68	aarthi	897580	19	2	4	4	1	2			1							2	2	1	1	1	0	0	1
69	mariya petricia	790025	19	2	4	4	1	2			1							2	2	2	2	1	0	0	3
70	akalya	23478	18	2	4	4	1	4			1							2	2	2	2	1	0	0	3
71	vasuki	8903269	16	2	3	5	2	3			1							2	2	3	1	1	0	0	1
72	manonmani	90912	19	2	4	4	2	3							1			2	2	1	3	1	0	0	7a
73	rajathi	910875	19	2	4	4	2	4							1			2	2	1	1	1	0	0	4
74	kavitha	911846	13	1	2	4	1	2					1					2	2	1	1	2	0	0	1
75	ramya	727354	19	2	4	4	2	3						1				2	2	1	1	1	0	0	2
76	girijadevi	909364	16	2	3	4	2	4			1							2	1	1	2	1	0	0	3
77	nisha	760906	18	2	4	4	2	2			1							2	2	1	1	1	0	0	1
78	arthi	931761	14	1	2	4	2	1								1		2	2	1	1	1	0	0	4
79	oviya	933560	17	2	3	4	2	2				1						2	2	4	1	1	0	0	1
80	nisha banu	391924	15	1	2	3	1	2				1						2	2	3	1	1	0	0	1
81	udayageetha	940420	18	2	4	4	2	1				1						2	2	4	1	1	0	0	1

sno	NAME	OPIPNO	AGE	AGE-G	EDN	SES	LOCALITY	BMI	Com.1	Com.2	Com.3	Com.4	Com.5	Com.6	Com.7	Com.8	Com.9	GOITRE	HIRSUTIS	HB	USG	TSH	PL	LH	DIAGNOSIS
82	chithra	25145	17	2	3	4	2	2			1				1			2	2	2		1	0	0	8
83	soundharya	10823	18	2	4	4	2	1									1	2	2	3	4	2	0	0	9
84	sneha	24815	18	2	4	4	2	1									1	2	2	1	4	1	0	0	7b
85	thaslima banu	15576	16	2	3	4	1	2									1	2	2	1	4	1	0	0	7a
86	nivedha	144921	14	1	2	4	2	2	1									2	2	1	1	1	1	1	6
87	pavithra	24871	15	1	3	4	2	3		1								2	2	1	1	1	0	0	1
88	karthiga	933515	19	2	4	4	1	3				1		1				2	2	2	1	1	0	0	1
89	sindhuri	933851	19	2	4	5	2	4			1							2	2	1	2	1	0	0	3
90	arivalagan	945815	16	2	3	4	2	3			1							2	2	2	2	1	0	0	3
91	ranjitha	13233	14	1	3	4	2	2				1						2	2	3	1	1	0	0	1
92	nandhini	13603	19	2	4	3	2	3				1						2	2	4	1	2	0	0	1
93	soundharya	10833	18	2	4	4	2	2									1	2	2	2	3	2	0	0	7a
94	sadhana	10853	16	2	4	3	1	2							1			2	2	2	3	1	0	0	7a
95	anushiya	3142	14	1	3	3	1	2				1						2	2	3	1	1	0	0	1
96	darshini	978	16	2	3	4	2	2			1							2	2	2		1	0	0	1
97	gayathri	49410	18	2	4	4	2	3				1						2	2	2	1	1	0	0	1
98	mahalakshmi	5593	19	2	4	4	1	3				1						2	2	2	1	1	0	0	1
99	gayathri	40344	19	2	4	4	1	3				1						2	2	3	1	1	0	0	1
100	linasaraswathy	37973	19	2	4	4	2	2			1							2	2	2	2	1	0	0	3
101	parameshwari	9202	19	2	4	4	2	2									1	2	2	1	3	1	0	0	7a
102	vembarasi	2300	13	1	2	4	1	2				1						2	2	1	1	1	0	0	1
103	umamaheswar	7701	18	2	3	4	2	2				1						2	2	4	1	1	0	0	1
104	prianka	40813	18	2	4	4	2	3			1							2	2	1	2	1	0	0	3
105	mary	72801	16	2	3	3	2	2				1						2	2	1	1	2	0	0	1
106	sumathi	82345	14	1	3	3	2	2	1									2	2	1	1	2	1	1	6
107	thamarai	98541	19	2	4	4	1	2				1						2	2	1	1	1	0	0	1
108	kanimozhi	82345	17	2	2	5	2	3				1						2	2	1	1	1	0	0	1
109	kalaivani	75677	15	1	2	4	1	4				1						2	2	3	1	1	0	0	1
110	vanitha	85430	16	2	3	4	1	3			1							2	2	1	2	1	0	0	3
111	dhivya	1216	16	2	3	3	2	2									1	2	2	1	4	1	1	1	7b
112	sinthiya	4297	18	2	4	4	1	2									1	2	2	1	4	0	0	0	7b
113	ponnmuthu	8290	17	2	3	4	1	2									1	2	2	1	4	0	0	0	7b
114	kirubha	57358	18	2	3	4	2	2									1	2	2	1	4	0	0	0	7b
115	yazlini	663	16	2	2	3	1	2									1	2	2	1	4	0	0	0	7b
116	sathana	6967	16	2	3	3	1	3								1		2	2	1	5	1	1	1	8
117	priyadarshini	5888	17	2	3	3	1	3								1		2	2	1	5	1	1	1	8
118	anushiya	5841	19	2	4	4	2	2							1			2	2	2	4	1	0	0	5