

ORIGINAL RESEARCH

**A STUDY ON GYNAECOLOGICAL PROBLEMS IN
ADOLESCENT GIRLS AND ETIOLOGICAL FACTORS IN
GOVERNMENT MEDICAL COLLEGE, KADAPA**

Kesavachandra Gunakala¹, P.M. Rekharao², T. Bhavya³, Vennela Mude⁴

¹Associate Professor, Department of Obstetrics & Gynecology, Govt Medical College/General Hospital, Kadapa, AP, India

²Assistant Professors, Department of Obstetrics & Gynecology, Govt Medical College/General Hospital, Kadapa, AP, India

³Postgraduate, Department of Obstetrics & Gynecology, Govt Medical College/General Hospital, Kadapa, AP, India

⁴Assistant Professor, Department of Obstetrics & Gynecology, Govt Medical College/General Hospital, Kadapa, AP, India

Corresponding Author:

Dr. T. Bhavya, Postgraduate, Department of Obstetrics & Gynecology, Govt Medical College/General Hospital, Kadapa, AP, India

ABSTRACT

Background: Low socio economic group hailing from rural population was the maximum group of girls studied. To study various gynaecological problems and etiological factors encountered in adolescent girls who attended the gynaecological OPD, at GMC, Kadapa.

Materials and Methods: A total of 200 cases of adolescent girls aged 10 -19 years who attended gynaecological OPD and emergency department. Detailed history with regard to gynaecological problems was taken from the patient and girl's mother was also interviewed to get accurate details about any previous medical problems if present.

Results: Maximum incidence of gynaecological problems was seen in age group of 17 years. Among the various presenting complaints in studied adolescent girls, menstrual irregularities were the most common. Oligomenorrhoea was the most common menstrual problem in this study. Anovulation is the most common cause of menorrhagia in adolescents. Majority of adolescent girls suffered from anemia ranging from mild to severe types of anemia. 5.56% patients with puberty menorrhagia received blood transfusion. The most common cause of oligomenorrhoea was the hypothalamic pituitary gonadal dysfunction. Counselling and reassurance was an integral part of treatment strategies. PCOS and hypothyroidisms were the other endocrinological abnormalities common among the adolescent girls. Leucorrhoea in adolescent girls in my study were most commonly. physiological, counselled and explained to maintain proper hygiene.

Conclusion: A combined effort of team comprising gynaecologist, endocrinologist is required in arriving final diagnosis in case of primary amenorrhoea.

Keywords: Anemia, Adolescents, Menorrhagia, PCOS, Menstrual Cycle.

INTRODUCTION

"WHO" defines adolescents as age group between 10-19years? Gynaecological problems of this age group occupy unique space in the spectrum of gynaecological disorders of all ages. This is because of physical nature of the problems which are so unique, special and specific for this age group and also associated psychological factors which are important in growth and remodeling of someone in transition between childhood and womanhood. Various adolescent gynaecological problems are menstrual disorders like abnormal uterine bleeding, primary amenorrhoea, puberty menorrhagia leading to severe anaemia, sexual abuse, endocrinopathies etc.

"No longer a child, not yet a woman", is a line which captures the ethos of adolescence beautifully. This is a time of transition from childhood to becoming responsible adults. The changes are not only physical and sexual but also psychological changes which occur, may begin before and even continue after this age.

The biological dominant of adolescence are universal, however there may be variation in the duration, defining characteristics of the phase across time, demographic area, culture and socioeconomic conditions. Over the time there been many changes in the pattern of this period like time of onset of puberty, Urbanization, changing attitude towards sexuality, behaviour etc.

Early adolescence constitutes 10-14yrs age group. During this phase physical changes usually commence with growth spurt followed by development of secondary sexual characters. This can cause significant anxiety, psychological stress or excitement for an adolescent whose body is transforming. Late adolescence is between 15-19yrs of age are at greater risk as compared to boys of same age, regarding health as well as emotional issues like eating disorders and menstrual abnormalities. Adolescent period in a girl's life is the preparation for safe motherhood. These adolescent girls are the direct reproducer for future generation. So health of these girls not only influences her own health, but also health of future generation. Reproductive health related problems of adolescent girls have its own special space in spectrum of gynaecological problems of all ages. This is because of its unique presentation and association with emotional and psychological factors.

India has highest adolescent population in the world, today the country is home to 250 million (19.6%) adolescent according to 2011,^[1] census. The population foundation of India, a non-profit, commissioned a study "investing in Adolescent Development" who examines current interventions in physical and mental health, education and in prevention of early marriage. With this preview, my thesis titled. Study on gynaecological problems in adolescent girls and etiological factors" I have made an attempt to review and analyze various gynaecological problems and factors responsible for development and progression of these problems in adolescent girls attending gynaecological OPD and emergency casualty, GMC Kadapa.

Aims and objectives

To study various gynaecological problems and etiological factors encountered in adolescent girls who attended the gynaecological OPD, at GMC, Kadapa.

To evaluate gynaecological problems, etiological factors, various clinical presentation and different modalities of management.

MATERIALS & METHODS

A total of 200 cases of adolescent girls aged 10 -19 years who attended gynaecological OPD and emergency department in GGH, Kadapa.

Study design: Prospective study Inclusion criteria:

1. Age between 10 - 19 years suffering from gynaecological conditions like menstrual disorders, acne, hirsutism, vaginal discharge, weight and height problems, anemia.
2. Patients who gave valid written informed consent.

Exclusion criteria:

1. Those who doesn't belongs to adolescent age group 10-19yrs.
2. Patients who do not give valid written consent.

History: Detailed history with regard to gynaecological problems was taken from the patient and girl's mother was also interviewed to get accurate details about any previous medical problems if present.

Physical Examination: A thorough clinical examination including height, weight, secondary sexual character, general examination of breast, thyroid, cardiovascular system, respiratory, and central nervous system or any congenital anomalies were noted.

Body mass index (BMI) or quetelet index was calculated using the formula:-

$$\text{BMI} = \frac{\text{weight in kg}}{(\text{Height in m})^2}$$

General examination comprising thyroid examination, presence of hirsutism, pubertal stage of breast and pubic hair were graded according to Marshall and Tanner staging. External genitalia examined. Per abdominal examination done to rule out any mass. Per rectal and bimanual pelvic examination done whenever indicated.

Then patients were subjected to various investigations like haemogram, coagulation profile, hormonal assays, and ultrasonography depending on diagnosis clinically.

Amenorrhoea cases were referred to endocrinologist and genetic counseling done. For all cases, relevant investigation like karyotyping was done and the diagnosis confirmed. Patients were also referred to haematologist, oncologist in those indicated.

Adolescent girls with complaints of acne and white discharge were also referred to dermatologist.

RESULTS

Table 1: Age Distribution

Age	No of adolescent girls	Percentage
14 years	7	3.50%
15 years	29	14.50%
16 years	12	6.00%
17 years	64	32.00%
18 years	44	22.00%
19 years	44	22.00%
Total	200	100%

Mean age 17.19year and standard deviation 1.46

Maximum number of girls attending gynaecological OPD was at the age of 17 years (64/200).

Table 2: Socioeconomic status

Socioeconomic status	No of patients	Percentage
Class III	158	79.00%
Class IV	34	17.00%
Class V	8	4.00%
Total	200	100.00%

In my study, all the girls were mostly from family with low socioeconomic status either from class –III/IV/V.

Table 3: Educational status

Education	No. of patients	Percentage
primary	12	6.00%
Secondary	20	10.00%
Higher secondary	168	84.00%
Total	200	100.00%

This table shows number of adolescent girls in study group with their educational status.

Table 4: Demography

Area	No. of adolescent girls	Percentage
Urban	73	36.50%
Rural	127	63.50%
Total	200	100.00%

Majority of adolescent girls under study belong to rural area (63.50%).

Table 5: Body mass index

BMI	No of patients	Percentage
Under weight	8	4.00%
Normal	168	84.00%
Over weight	24	12.00%
Obese	0	0.00%
Total	200	100.00%

In the study group, adolescent girls were categorized into normal, underweight, obese.

Table 6: Anemia incidence

Anemia	No of patients	Percentage
Normal	82	41.00%
Mild	11	5.50%
moderate	101	50.50%
Severe	6	3.00%
Total	200	100.00%

Majority of adolescent girls were anemic, which ranged from mild to severe type based on haemoglobin estimation.

Table 7: Presenting complaints in study population

Complaints	No. of patients	Percentage
Menstrual complaints	85	45.70%
Vaginal discharge	52	27.90%
Lower abdominal pain	33	17.74%
Urinary problem	5	2.69%
Weight problem	4	2.15%
others	7	3.76%
Total	186	100.00%

Most common presenting complaint among adolescent girls was menstrual complaint.

Table 8: Types of menstrual dysfunction

Menstrual disorders	No of patients	Percentage
oligomenorrhea	106	56.99%
menorrhagea	36	19.35%
Dysmenorrheal	28	15.05%
Amenorrhea	15	8.06%
Polymenorrhea	1	0.54%
Total	186	100.0

Menstrual complaints being the most common complaints among the studied adolescent group of girls. Menstrual complaints ranged from amenorrhea to menorrhagia.

Table 9: Causes of oligomenorrhea

Causes	No of patients	Percentage
HPO axis dysfunction	70	66.04%
PCOS	21	19.81%
Hypothyroidism	11	10.38%
Hypothyroidism with PCOS	4	3.77%
Total	106	100.00%

Common causes of oligomenorrhea in my study were HPO axis dysfunction.

Table 10: Association between anemia and puberty menorrhagia

Anemia	No of cases with menorrhagia	percent	Chi square test	P value
Normal	2	5.56%	53.77	0.001
Mild	4	11.11%	53.77	0.001
Moderate	28	77.77%	53.77	0.001
Severe	2	5.56%	53.77	0.001
Total	36	100.00%		

There is highly significant association between anemia status and puberty menorrhagia.

Table 11: Adnexal mass in study group

Tumors	No of cases	Percentage
Ovarian malignancy	0	0.00%
Twisted ovarian cyst	0	0.00%
Simple ovarian cyst	4	100.00%
Total	4	100.00%

In this study, 4 adolescent girls were diagnosed with ovarian tumors, which are benign and is simple ovarian cyst.

DISCUSSION

Menarche is the telltale event in the life of adolescent girls. It marks the transition from childhood to puberty. Menstrual complaints are the commonest reasons in adolescent girls for consulting doctors.

This study was conducted at Government General Hospital, Kadapa to analyze various gynaecological problems, etiological factors and medical management in adolescent girls.

My study shows menstrual disorders,^[2] as commonest gynaecological problem in adolescent girls, ranging from amenorrhea to menorrhagia. In my study maximum incidence of gynaecological problems was seen in age group of 17yrs. About 3% girls were school drop

outs. In my study I have observed that menstrual disorder is the most common gynaecological problem among randomly selected adolescent girls which is in comparison to studies done by Sreelatha et al.^[3] Linda Varghese et al.^[4] Goswami et al,^[5] and Ramaraju et al.^[6] In the study conducted by sreelatha et al., it was observed that 62.5% gynaecological problems were due to menstrual disorders. Similarly, Ramaraju et al, reported that 74% gynaecological problems are due to menstrual disorders. In my study it was observed that 45.70% of gynaecological problems were due to menstrual disorders.

Adolescent girls with primary amenorrhoea are brought to the physicians by their mothers with major concern regarding their reproductive life. The defects have been compartmentalised and may lie within the uterus, ovaries, pituitary or hypothalamus. Genetic and chromosomal anomalies also contribute to a major portion of primary amenorrhoea especially in cases of gonadal failure. The workup of primary amenorrhoea should be very meticulous including history, physical examination, hormone evaluation, pelvic imaging (either ultrasound or MRI). The importance of cytogenetic studies and karyo type cannot be overemphasized in establishing the diagnosis. It should be done in all cases of hypergonadotropic hypogonadism and patients with androgenic features. Karyotyping helps in establishing the diagnosis and also guides the treatment, especially for psychological counselling of the patient. It aids in decision for gonadectomy in the presence of Y line and future pregnancy option.

In my study primary amenorrhea,^[7] accounted for 3.5%, which is less than that reported by Sebanti et al (6.45%) and study by Archana et al,^[8] 6.25% .

Out of total 7 cases of primary amenorrhea 4 cases were found to be with cyclical abdominal pain, hematocolpos diagnosed as imperforate hymen and on examination there is a palpable lower abdominal mass. And on genital examination there is a bluish bulging hymen and were treated with cruciate incision of hymen.

In my study 2% cases were diagnosed with cryptomenorrhea ,where as in Pourafkari et al,^[9] study accouted for 9.4% , GS Anitha et al,^[10] study accouted for 18% cases, Rattanachaiyanont M et al,^[11] accounted for 0.90%,in Kumari A et al.^[12] Rao et al,^[13] studies accounted for 0.00%.

Two cases were diagnosed with turner syndrome and one case with Mullerian agenesis.

Mashchak et al,^[14] 1981, Shearman and Roberts et al,1982, Sebanti et al, 2005 show that the commonest cause of primary amenorrhea was mullerianagenesis. In my study the commonest cause of primary amenorrhea with normal secondary sexual characters was mullerian agenesis. In my study Turner syndrome is the commonest cause of primary amenorrhea with delayed secondary sexual character. Common causes of primary amenorrhea with delayed secondary sexual characteristics. (Garden et al, 1998, Edmond et al,^[15]1999) were

- 1) Turner syndrome
- 2) Gonadotrophin deficiency
- 3) Constitutional delay.

Finally, as in all medical conditions, it is critical that patients be adequately counseled about their diagnosis, the long-term implications of this diagnosis, and the treatment options. Even if not raised by the patient, the potential for future childbearing should be discussed. Many women are under the impression that it is dangerous not to have a menstrual period, and should be reassured that this is, in and of itself, not a concern. On the other hand, all women

with an intact endometrium should understand the risks of unopposed estrogen action, whether the estrogen is exogenous, such as through hormone therapy, or endogenous, such as in PCOS. Hypoestrogenic women should be counseled about the importance of estrogen replacement to protect against bone loss.

Secondary amenorrhea due to teenage pregnancy were 2.03% cases, which is similar to that of cases by Sebin et al (4.30%). Unwanted pregnancies in teenage girls should be prevented, as it may lead to STIs, RTIs (septic abortion, PID) affecting future reproductive health. As the world has transitioned to sustainable developmental goals era,^[16] adolescents have moved to Centre of the global health and development agenda.

Awareness about Adolescent sexual and reproductive health clinics (ASRH clinics), in which essential components of this ARSH programs includes information and counselling, access to STI/HIV treatment and care, contraception provision and maternal health services of adolescents.

In my study oligomenorrhea is the most common menstrual complaint accounting 56.99%. Morgana et al,^[17] and London et al, showed that HPO axis dysfunction followed by PCOS, stress, thyroid disorders are the common causes of oligomenorrhoea.

Prevalence of menstrual disorders

Stein and Leventhal syndrome (PCOS) is characterized by the combination of hyperandrogenism, polycystic ovaries and anovulation., which is the second most common cause of oligomenorrhea was diagnosed in 16/48 cases of secondary amenorrhea.

In my study PCOS is the cause of menstrual irregularities in 21/200 (19.81%) cases which is comparable to the findings of 22.9% in the study by Archana et al (2013). Treatment is started with lifestyle modification which leads to weight loss, improves anovulation, indirectly reducing arterial blood pressure. Regular cycles were restored with combined oral contraceptive pills. Cyproterone acetate which is anti-androgen helpful in treating hirsutism. Thus the treatment of adolescents with PCOS has to be focused on short term aspects such as self-esteem, acne, hirsutism improvement, weight control and menstrual cycle regulation. It is important however treatment should also take into long term aspects such as reducing the risk of type 2 diabetes mellitus and cardiovascular disease.

A study by Benson et al,^[18] (2010) conducted on 449 women with PCOS showed that some participants had a passive coping strategy in dealing with this syndrome (retreating and accepting one's fate regarding the disorder), which is an un-harmonious strategy that leads to the emergence of anxiety and depression and in turn decreases the quality of life. In contrast, some participants who adopted active coping strategies (problem-solving and information-seeking) had lower levels of depression. The participating adolescents of this study had a positive attitude and took health-recovery measures to cope with the disorder.

Puberty menorrhagia accounts for 19.35% of my study, 28 out of 36 cases were admitted in our hospital of which 5.56% were treated for severe anemia and 3 were moderate anemia, which required blood transfusion.

Most common cause is DUB, in which anovulatory type is most common in adolescents

It is due to immature hypothalamo pituitary ovarian axis, which takes 2 - 5 years for complete maturation. Counselling was done, Hickey and Balen mentions reassurance of girls and their parents is appropriate management. Anemic patients were treated with hematinics., Antifibrinolytics and ocp's or progesterones. Premature fusion of epiphysis occurs in

prolonged therapy with ocp, which should be avoided. Puberty menorrhagia accounts for 19.35% of all menstrual complaints in my study which is comparable to the finding of 19.8% conducted by Radhe Akang et al.

Primary dysmenorrhea was presenting complaint in 18 cases out of 28 in my study group. 3 out of 18 cases had severe problem prevent them from going to school. These girls had given detailed history on elicitation that mother and siblings have history of dysmenorrhea. Dickens et al, mentioned family history of primary dysmenorrhea.

Prevalence of dysmenorrhea was high in late adolescent age group. Balasubramanian et al,^[19] 2000 and Rehman et al,^[20] 2004 also reported similar findings. Its etiology is not precisely understood, but symptoms are explained by the action of uterine prostaglandins mainly PGF₂ alpha, which stimulates myometrial contraction, ischemia and sensitization of nerve endings. NSAIDS are first line therapy by inhibiting production and release of prostaglandins. Oral contraceptives are second line of therapy, acts by suppressing ovulation. Premenstrual disorders namely premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD), are a group of physical, cognitive, affective and behavioural symptoms that occur cyclically during the luteal phase of the menstrual cycle and resolve at or within a few days of the onset of menstruation. The common symptoms of PMS and PMDD include swelling, breast tenderness, aches, headache, bloating, sleep disturbances, appetite change, poor concentration, decreased interest, social withdrawal, irritability, mood swings, anxiety / tension, depression, and feeling out of control. In young adolescents symptoms might particularly affect school functions and social interactions in a negative way. In my study, 2 patients were reported with premenstrual disorders of which patient presented with severe pain abdomen of which they are presented with pain abdomen, nausea and vomiting and treated with antiemetics, counselling was given to patients and their mothers.

Counselling for psychological symptoms, vitamins B1, B6, and vitamin E may help. Drugs will help for severe symptoms.

Even though so many causative factors are involved in producing menstrual irregularities, one among the factor, i.e. stress which needs more attention because academic stress is more prevalent among college as well as school girls nowadays because of modern lifestyle changes and this factor is the one which can be corrected without medications by producing a change in lifestyle pattern.

While many factors influence irregular periods, a stress induced hormonal imbalance is one of the common cause. Stress is an unavoidable consequence of life.

The hypothalamic - pituitary - adrenal axis when activated by stress exerts an inhibitory effect on female reproductive system. CRH inhibits GnRH secretion and glucocorticoid inhibits pituitary hormone, ovarian estrogen and progesterone secretion. These effects are responsible for hypothalamic amenorrhoea of stress, which is observed in anxiety and depression, malnutrition and chronic excessive exercise.

This menstrual irregularity can manifest in so many ways like longer or shorter cycles than normal, heavier or lighter periods, painful menstruation and spotting in between cycles. For many women experiencing stress induced menstrual.

Irregularities, the better option are making lifestyle changes to reduce and eliminate stress. This will often balance hormones like cortisol once again, normalize irregular periods and lead to overall better health. Studies in some western population done by Cakir et al,^[21]

showed that this menstrual irregularity was reported in 43 to 62% of girls during first year of post menarcheal year and in some girls it persisted for 3 to 5 years. Then only the hypothalamo pituitary ovarian axis becomes stabilized. If persistent, this irregularity then becomes a major gynaecological problem during adolescence as well as in adult life. Definitely it has an adverse impact on day to day activities such as avoidance of outdoor activities or exercise and increase in absenteeism from school or college.

The spectrum of irregularity ranges from disorder of cycle length to disorder of menstrual flow. They include amenorrhea otherwise known as absent menstruation, excessive or prolonged flow called as menorrhagia. Infrequent or delayed flow called as oligomenorrhoea, frequent flow called as polymenorrhoea, painful menstruation known as dysmenorrhoea, premenstrual syndrome.

Apart from physiological variations, there are so many factors which have been known to be the cause for menstrual irregularities. These include environmental, nutritional, physical activities and stress especially physical, emotional as well as mental stress. The effect of chronic stress on adolescent menstrual characteristics have been confirmed by cross sectional and prospective studies by Christiani et al,^[22] Similar associations are observed for cardiovascular, musculoskeletal disorders, mental illness and both prevalence as well as severity of menstrual irregularities by Kivimak et al,^[23]

Many strategies have been shown to reduce stress such as physical exercise, Practicing meditation and yoga asana, breathing exercise and engaging in a cognitive behavioural therapy program.

Leucorrhoea, which is the second most common complaint in adolescent girls in my study. In my study 52 cases of vaginal discharges were reported of which 40 cases were physiological leucorrhoea. Physiological leucorrhoea occurs due to hormonal imbalance, sexual excitement, and at the time of ovulation. counselling and maintenance of personal hygiene helped in this condition.

S. Patel V et al,^[24] find higher percentage of vaginal discharge in younger age group, unmarried and among those who are working. Tanksane et al,^[25] in his study he observed that 70% of patient had watery discharge, 17% had greenish discharge, 13% had curdy discharge. In middle age trichomonosis followed by bacterial vaginosis, followed by Candiadsis and lastly nonspecific vaginitis.

It is challenging to differentiate between physiological and pathological leucorrhoea.

Infection is the commonest cause of pathological leucorrhoea. Vaginal discharge may due to STIs like Chlamydia, gonococci or due to non-sexually transmitted diseases like candidia, trichomanas and bacterial vaginosis. Leucorrhoea is frequent embarrassing problem especially in low socio economic status.

Empowerment of adolescent girl is necessary to cope her with changes and promote awareness of health, hygiene and nutrition so as to break the intergenerational life cycle of nutritional and gender disadvantage and provide enabling and supporting environment for self-improvement.

Dealing with ovarian tumors in adolescents is a challenge because of its rare presentation, atypical symptoms, probably serious outcome on patient's reproductive life. Physiological cyst of ovary was found in 10/200 case in my study. Sebinti et al, 2005 and Archana et al, 2013 have reported higher incidence of ovarian tumors in their study 15.3% and 4.5%

respectively. In Ramaraju et al,^[26] and Samarath et al,^[27] in which 4% and 1.86% of adolescent girls had ovarian masses, which is similar to my study that is 5%, which are asymptomatic.

Functional ovarian cysts are the most frequently observed ovarian masses in adolescent girls. Most of the adolescents were managed conservatively. Asymptomatic cystic ovarian masses require only observation as these are always benign and regress spontaneously in 3 to 6 months or promote regression with OCPs for 3 months.

All over India two programs have been initiated by FOGSI, that is "growing up" program and also, "Let's Talk" program. "Growing Up" program initiated by FOGSI in partnership with Johnson and Johnson educates schoolgirls on menstruation, its myths and hygiene, anatomy and functioning of the reproductive system, value of good nutrition and exercises, problems of drugs, alcohol and smoking and about sexual abuse. Another program "Let's talk" initiated by FOGSI in association with Organon educates college-going women about various forms of contraception. An unmarried girl presented with septic abortion due to illegal interference, required laparotomy for generalized peritonitis, went into septic shock and then recovered. Counselling of the girl and family members was done. Anemia in adolescent age has a detrimental effect on growth and development as well as school and work performance. It is associated with lethargy, limited learning ability, and poor scholastic achievement, impaired motor coordination, decreased attention span and increased susceptibility to infections, loss of appetite and inadequate food intake and pica.

Adolescent anemia results in inadequate preparation for later motherhood as iron stores are exhausted. Anemia was diagnosed in total of 59% of cases. 6 girls had severe anemia out of which 3 cases were of puberty menorrhagia. The iron requirement in an adolescent girl increases dramatically during this period as a result of expansion of the lean body mass, total blood volume, onset of menstruation etc. These changes make adolescent girls more susceptible to anemia which has long-lasting consequences on growth and development in later life. So these girls were treated with good haematinics, control of menorrhagia and advice regarding iron-rich diet was given. A study by Siddharam et al,^[28] on adolescent girls has found that mild anemia, moderate anemia and severe anemia was seen in 40.14%, 54.92% and 4.92% respectively. Another study by Sanjeev et al,^[29] revealed that 69.2% of cases had mild anemia, 30.8% adolescent has moderate anemia. Rawat et al,^[30] study mild anemia 55.2%, moderate anemia were 40.8% and severe anemia were 4% respectively.

Adolescent anaemia has long been recognized as a public health problem in India – but political momentum to address the issue was lagging, in part, because of the lack of national evidence on the magnitude of the problem and potential solutions.

Putting an end to anaemia is a powerful investment in India's future – and the future of all nations. Efforts to control anaemia in India are aligned with achieving global targets such as the Sustainable Development Goals and the World Health Assembly nutrition targets, and this has helped to secure momentum for the programme going forward.

India's Ministry of Health is championing this agenda through its, "Anaemia-Free India 2018–2022",.

The prevalence of UTI is higher during adolescence, a period in which hormonal changes favor vaginal colonization by nephritogenic strains of bacteria, which can migrate to the periurethral area and cause urinary tract infection. It is associated with poor self-esteem, impaired quality of life, social isolation, and depression.

Significantly, this health problem is contributing to the overall morbidity of females in all ages of their life. Urinary tract infection is a common problem of adolescence causing much discomfort and loss of school. Inadequate hydration, lack of clean toilets and poor menstrual and sexual hygiene predisposes a young girl to UTI. The need is to educate our girls regarding good hydration and hygiene. According to Ahmed et al,^[31] the incidence of urinary tract infection in 10 to 19 year old girls was 12.7%. In my study urinary tract infection incidence is 10.5%, in which I have educated the girl and their parents regarding good hydration and hygiene. In Vyas et al,^[32] and in srivastava et al.³³, study the incidence of urinary tract infection in adolescent girls were 20% and 9.1% respectively.

Sexual abuse is a pervasive public health problem that affects all directly or indirectly causing many short- and long-term struggles for victims, families, communities and the whole social system. Although sexual abuse is growing as a major problem in community, especially among the adolescents the trend and facts have not been explored adequately. Impacts of assault can be serious and long lasting. The current Ohio Revised Code defines sexual assault as being: "sexual conduct with another...when the offender purposely compels the other person to submit by force or threat of force or deception, or when the other person's ability to consent is substantially impaired because of a mental or physical condition... (2907.03)."

An impaired ability to consent includes being under the influence of drugs or alcohol, a factor that becomes very important on college campuses.

Increased social interaction in these potentially sexual contexts is likely to increase their exposure to sexually aggressive males who may be friends, acquaintances, and strangers. Due to their inexperience with dating and sex, adolescent girls may misinterpret a male's flirtatious behaviour or fail to recognize cues that he will become sexually aggressive.

Adolescent girls may also be perceived by potential perpetrators as more vulnerable due to their smaller size, sexual naïveté, lack of resistance strategies, inexperience with substance use, or reluctance to seek help for fear of social or disciplinary repercussions.

In my study 1 out of 200 cases has been abducted and assaulted by neighbour. Parents and the girl were counselled and educated. Empowered, educated, healthy, and safe adolescent girls possess a better complement of tools to make the transition into adulthood and engage productively in the economy as adults.

PID is an infection of the female upper reproductive tract, including the endometrium, fallopian tubes, ovaries, and pelvic peritoneum. Sexually transmitted infections (STIs), such as Chlamydia trachomatis and Neisseria gonorrhoeae, are commonly implicated in cases of PID, but they are not the only organisms associated with clinical disease. The diagnosis of PID is made difficult by variation in clinical manifestations: subclinical patients with PID are asymptomatic, while patients with more severe disease present with abdominal pain requiring surgical intervention. Subclinical PID is defined as inflammation of the upper reproductive tract in the absence of signs and symptoms of acute PID.

According to the CDC 2015 Sexually Transmitted Diseases Treatment Guidelines, any young sexually active woman or woman at risk for STIs with unexplained lower abdominal or pelvic pain and at least one of the following clinical criteria noted on pelvic examination should receive presumptive treatment for PID with cervical motion tenderness, uterine tenderness, and adnexal tenderness.

Thyroid disorders are amongst the most prevalent of medical conditions and these are common worldwide. In India too, there is a significant burden of thyroid diseases. The prevalence of hypothyroidism is the most common type of thyroid dysfunction. This study was undertaken to find presence of thyroid abnormalities in adolescent intellectually disabled girls and if there is associated delay in sexual maturation. In my study I found deranged thyroid profile in two subjects (10.38%) – one showing overt hypothyroidism and one showing subclinical hypothyroidism, and in Ganesh Arun Joshi et al,^[34] incidence is 9.52% which is similar to my study. An increase in ovarian volume and cystic changes in ovaries have been reported in primary hypothyroidism. In a study, on somewhat less severe primary hypothyroidism, by Muderris et al,^[35] treatment naïve females with primary hypothyroidism, with mean TSH 57.1 mcg/dl, underwent evaluation of ovarian volume before and after replacement with thyroxine. Thyroid autoimmunity is increased in patients of PCOS. Therefore, hypothyroidism can lead to polycystic morphology of the ovaries. While this morphology can vary with severity and duration of hypothyroidism, there is no evidence to suggest that primary hypothyroidism can lead to PCOS.

CONCLUSION

Adolescent gynaecology is an important sub –specialized part of gynaecology. The importance of reproductive health problems among the adolescent has emerged tremendously during recent years. Though, FOGSI has dedicated the year 1999 as the year adolescent health and addressed the need for adolescent health clinics but still it remains a sub specialised area of gynaecology which still needs a great deal of attention.

Adolescents with oligomenorrhoe especially show endocrine abnormalities and may be at risk for ovulatory dysfunction and polycystic ovary syndrome in adulthood. Endocrinal abnormalities like PCOS are associated with future reproductive as well as metabolic morbidity. Therefore, it is very important to evaluate and manage endocrinal abnormalities in adolescent properly so as to secure a healthy reproductive life.

Menorrhagia, at all stages of life severely affects the quality of life. Effective management of puberty menorrhagia is mandatory in order to avoid adolescent with anemia. As mentioned earlier, adolescent girls being the direct reproducer of future generation, it is important to avoid adolescent embarking on pregnancy with anemia, which in long run reduces perinatal and maternal morbidity and mortality.

Teenage problems need to be dealt with utmost sensitivity. Counselling teenage girls as well as parents is an integral part of the treatment strategies. Awareness regarding health, nutrition and hygiene should be included in the counselling in order to curtail problems like anemia, leucorrhoea.

Though, adolescent gynaecology is not a new subject, but it still needs greater attention and increased awareness, in order to protect and promote health of adolescents. As the problems are specific to this age group, setting up of a separate “Adolescent Gynaecological Clinics” is the need of the hour.

REFERENCES

1. Age Data- Census of India 2011.
2. Richard H, Reindollar, M.D. and Paul. G. Mc Donough, M.D. Adolescent Menstrual Disorders. *Clinical Obst. & Gynaecol.* Vol.26, No.3, September 1983.
3. Sreelatha S., etal. "Gynaecological Problems in Adolescent Girls Attending OPD in ESIC Medical College and PGIMSR Bangalore". *Gynaecology and Perinatology* 2.5 (2018): 356-360.
4. Linda Varghese etal. *Journal of South Asian Federation of Obstetrics and Gynaecology*, January-February 2019;11(1):13-16 13.
5. PrakritiGoswami, Geeta Ahirwar, Prabha Mishra, Veena Agrawal. "Adolescent Gynaecological Problems: A Prospective Study." *Journal of Evolution of Medical and Dental Sciences* 2015; Vol. 4, Issue 102, December 21; Page: 16709-16712, DOI: 10.14260/jemds/2015/2500.
6. Ramaraju H.E1., Shivakumar H.C2., Khazi A.A3 etal., *Indian Journal of Basic and Applied Medical Research*; September 2015: Vol.-4, Issue- 4, P. 649-653.
7. Shearman, R.P and Roberts J. 1982. The embryology and endocrinology of primary amenorrhoea a study of 140 patients.*Clin. Reprod. Fert.* 1:117-130.
8. Archana D. Rathod, etal *J ObstetGynaecol India.* 2016 Oct; 66(Suppl 1): 400–406. 2015 Oct 16. doi: 10.1007/s13224-015-0770-1.
9. Pourafkari M, Ajori L, Fallahian M, Moghimi M, Azizi F. Ultrasonographic findings in a group of Iranian patients with primary amenorrhoea. *Iran J Radiol* 2008;5(2):97-100.
10. Anitha GS, Tejeswini KK, Shivamurthy G. A Clinical Study of Primary Amenorrhea J *South Asian FederObstGynae* 2015;7(3):158-166
11. Rattanachaiyanont M, Kunathikom S, Angsuwattana S, Techatraisak K, Mekmahan O et al. Primary amenorrhoea: a retrospective study at Siriraj Hospital. *J Med Assoc Thai.* 1997; 80(10): 619-25.
12. Kumar A, Mittal S. Primary amenorrhoea (analysis of 48 cases). *J Indian Med Assoc* 1998 Apr;96(4):119-120.
13. K Rao etal. *J Indian Med Assoc.* 1991 Feb.*J Indian Med Assoc.*1991 Feb;89(2):423.
14. Mashchak, C.A., Kletzky O.A., Davajan V. and Mishell D.R. 1981. Clinical and Laboratory evaluation of patients with primary amenorrhoea *obstet. Gynaecol.* 57: 715-721.
15. Edmunds D.K. Primary amenorrhoea, *Progress in Obstetrics and Gynaecology*(Vol.10) John Studd : 281-1993.
16. World Health Organization. Regional Office for Europe. (7102). Child and adolescent health: fact sheet on Sustainable Development Goals (SDGs) : health targets. World Health Organization. Regional Office for Europe.
17. JF Morgan etal. Polycystic ovarian morphology and bulimia nervosa: a 9year follow-up study *FertilSteril*(2002).
18. Benson, S., Janssen, O. E., Hahn, S., Tan, S., Dietz, T., Mann, K., etal. (2008). Obesity, depression, and chronic low-grade inflammation in women with polycystic ovary syndrome. *Brain Behav. Immun.* 22, 177–184. doi: 10.1016/j.bbi.2007.07.003.

19. Balsubramanian P 2000. Health needs of poor unmarried adolescent girls. A community based study in rural Tamil Nadu. A draft paper from Rural Women's Social Education Centre, Tamil Nadu.
20. Haque SE, Rahman M, Itsuko K, et al. The effect of a school-based educational intervention on menstrual health: an intervention study among adolescent girls in Bangladesh. *BMJ Open* 2014;4:e004607. doi:10.1136/bmjopen-2013-0046..
21. Cakir M, Mungan I, Karakas, Giriskan I, Okten A. Menstrual pattern and common menstrual disorders among university students in Turkey. *Pediatrics International* 2007;49:938–42.
22. Christian B.J. Translational research – Balancing the demands of chronic illness caregiving and self-management for children, adolescents, and their parents. *Journal of Pediatric Nursing*. 2016; 31: 449-452.
23. Kivimaki, M., Virtanen, M., Flovainio, M. et al. (2006) Work stress in the etiology of coronary heart disease- a meta-analysis, *Scand. J. Work Environ Health*. 32: 431-42.
24. Patel V, Weiss HA, Kirkwood BR, Pednekar S, Nevrekar P, Gupte S et al. Common genital complaints in women: The contribution of psychosocial and infectious factors in a population based cohort study in Goa, India. *International Journal of Epidemiology*. 2006; 35:1478-1485
25. Tanksale VS, Sahasrabhojane, Patel V, Nevrekar P, Menezes S, Mabey D. the reliability of a structured examination protocol and self-administered vaginal swab: a pilot study of gynaecological outpatient in Goa, India. *Sex Transm Infect*. 2003; 79:251-253.
26. Ramaraju HE, Shivakumar HC, Khazi AA. Adolescent Gynaecological Problems in a tertiary care Centre. *Indian J Basic Appl Med Res*. 2015; 4:649-53.
27. Samarth S, Saunitra I, Chella H, Kanika RK. Study of various gynaecological problems and reproductive health awareness amongst adolescents at a rural setup in central India. *Int. J Reprod Contracept Obstet Gynecol*. 2014; 3:1010-14.
28. Siddharam S M et al / *Int J Biol Med Res*. 2011; 2(4): 922 – 924.
29. Sanjeev M Chaudhary, Vasant R Dhage. A study of anemia among adolescent females in the urban area of Nagpur.
30. Rawat CM, Garg SK, Singh VJ, Bhatnagar M, Chopra H, Bappai SK. Socio-demographic co-relates of anemia among adolescent girls in rural area of district Meerut (U.P). *Indian J Community Med* 2001;26:
31. Ahmed SM, Avasarala AK. Urinary tract infections (uti) among adolescent girls in rural Karimnagar district, AP – K.A.P. study. *Indian J Prev Soc Med*.
32. Vyas S, Varshney D, Sharma P, Juyal R, Nautiyal V, Shrotriya VP. An overview of the predictors of symptomatic urinary tract infection among nursing students. *Ann Med Health Sci Res*. 2015;5(1):54-8.
33. Srivastava S. Analytical study of urinary tract infection in adolescent girls. *Int J Reprod Contracept Obstet Gynecol* 2018;7:1385-8.
34. Joshi GA, Joshi PG. Study of Thyroid Function in Adolescent Girls with Intellectual Disabilities. *Int J Med Res Rev* 2014;2(6):534-538. doi:10.17511/ijmrr.2014.i06.05
35. Monzani A, Prodam F, Rapa A, Moia S, Agarla V, Bellone S, Bona G. Endocrine disorders in childhood and adolescence. Natural history of subclinical hypothyroidism in

children and adolescents and potential effects of replacement therapy: a review. *Eur J Endocrinol.* 2012 Dec 10;168(1):R1-R11. doi: 10.1530/EJE-12-0656. Print 2013 Jan.