



Study of Obstetric and Gynecologic Emergencies in Adolescents In Covid-19 Pandemic

Bijoya Mukherjee*¹ and Vaishali Suraiya²

¹Senior Resident, Department of Obstetrics and Gynaecology, VMMC and Safdarjung Hospital, India

²Senior Resident, Department of Obstetrics and Gynecology, VMMC & Safdarjung Hospital, India

*Corresponding Author: Bijoya Mukherjee, Department of Obstetrics and Gynaecology, VMMC and Safdarjung Hospital, India.

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Abstract

Study Objective: To find out the obstetric and gynecological emergencies with which adolescents present in the COVID-19 pandemic.

Design: This is a retrospective observational study.

Setting: The study has been carried out in casualty of the Department of Obstetrics and Gynecology in VMMC and Safdarjung Hospital for a period of 3 months during the COVID-19 pandemic.

Participants: Information regarding 228 adolescent patients attending the emergency has been taken from the records maintained at the emergency department and has been analyzed and tabulated into obstetric and gynaecological emergencies.

Intervention: No intervention has been done in this study.

Outcome Measure: The obstetric emergencies and gynecological emergencies of adolescents in the COVID-19 pandemic.

Results: 148 patients (64.9%) have attended with obstetric emergencies and 80 patients (35.1%) with gynecological emergencies. True labour pain and abortions (25%) are the most common obstetric emergencies with which the adolescents present at casualty. Post dated pregnancy (10.1%) and preterm labour (9.4%) are found to be the most significant complications associated with teenage pregnancy, the important other ones being prelabour rupture of membrane, pre eclampsia and antepartum haemorrhage. Menstrual disorders (40%) comprise the most important gynecological emergency out of which dysmenorrhoea is the major cause; followed by ovarian tumors (18.75%) and sexual assault (16.25%).

Conclusions: It is necessary to improve the health education, the availability of resources (online and offline) for the adolescents to overcome the dire obstetric and gynecological emergencies and offer them a healthy life instead, keeping in mind the possibility of future waves of COVID-19 pandemic.

Keywords: Adolescent; Pregnancy; Endocrinology

Introduction

The word "adolescence" is derived from the Latin word "adolescere" which means to grow into maturity. It is a transition from childhood to adulthood and characterized by the spurt in physical, endocrine, emotional and mental growth in the child. There is a change from complete dependence to relative independence [1]. WHO defines adolescence as individuals in the 10-19 years age group, and they constitute about 1/5th of the

world's total population [2]. Adolescents tend to be hesitant in seeking timely care and advice, primarily due to a lack of knowledge and perspective. As a result, unprotected sex and sexual abuse become rampant in this age group. Gynecological disorders are often neglected by them, which result in long-term consequences on their mental and reproductive health. Pregnancy in adolescents is also challenging, both physically and mentally and obstetric complications tend to occur as they choose not to undergo regular

antenatal care like the adults. Health professionals dealing with the adolescent age group should have empathy, friendliness and a non-judgmental attitude toward their patients. In this study, we attempt to focus on the spectrum of various gynecological and obstetric emergencies with which the adolescents have presented to us in the COVID-19 pandemic.

Materials and Methods

This is a retrospective observational study conducted in the casualty of the Department of Obstetrics and Gynecology in VMMC and Safdarjung Hospital for 3 months after Institutional Ethical Clearance. Records of 228 adolescent girls (10-19 years) attending the casualty with gynecological disorders or with pregnancy from June 2020 to January 2021 (during the period of COVID-19 pandemic) have been taken from the Admissions Register. The records of the detailed history of these patients, their physical examination findings like height, weight, vitals, secondary sexual characteristics, and any relevant investigations done like complete blood count, routine urine examination, coagulation profile, blood sugar, pelvic ultrasound have been recorded from the files of these patients kept at the Records Section. The details of medicolegal cases in this age group brought by the police attending the emergency department have been recorded from the medicolegal register kept at the emergency department. Those adolescents presenting at our emergency department due to pain abdomen owing to surgical causes have been excluded from this study. The data has been categorized into gynecological and obstetric emergencies and their causes are tabulated and statistically analysed.

Results

Data has been collected from 228 patients attending the casualty during COVID-19 pandemic over a duration of 6 months. Out of them 148 patients (64.9%) have attended with obstetric emergencies and 80 patients (35.1%) with gynecological emergencies. Overall, their mean age of presentation is 18.5 years, those with teenage pregnancies have mean age of 19.2years, and those with gynecological emergencies with a mean age of 17.4 years. 29 patients (19.6%) have attended for true labour pains at term and 15 patients (10.1%) due to postdatism. Important obstetric complications include preterm labour pains in 14 patients (9.4%), prelabour rupture of membranes in 12 patients (8.1%), pre eclampsia in 9 patients (6%) and antepartum haemorrhage

in 7 patients (4.7%). Other obstetric complications include hyperemesis gravidarum (0.6%), ectopic pregnancy (2.7%), fetal growth restriction (2%), oligohydramnios (2%), Rh negative pregnancy at term (2.7%), primi breech in labour (0.6%), IHCP (0.6%) and CPD in labour (1.2%) as diagnosed in casualty itself. 10 adolescent girls (6.7%) have presented with anemia in pregnancy out of which 4.7% have severe and 2% had moderate anemia. 23 teenage girls (15.5%) have attended casualty with abortions out of which 3 (2%) of them underwent dilatation and evacuation due to incomplete or inevitable abortions.. Comorbidities associated with teenage pregnancy include hypothyroidism (0.6%), jaundice (0.6%), seizure disorders (0.6%), psychiatric illness (0.6%), diarrhoea (1.2%) and speaking difficulty (0.6%).3 adolescent girls (2%) have come for evaluation after facing physical assault in pregnancy.

80 adolescent girls have attended with gynecological emergencies during this period out of which 32 (40%) have presented with menstrual disorders, 15 (18.75%) with abdominal pain with known case of ovarian tumors including cysts. Of the menstrual disorders, 46.9% cases have presented with abnormal uterine bleeding, the majority(15%) being due to puberty menorrhagia, 3.1% cases with cryptomenorrhoea and rest 50% of such patients with dysmenorrhea. Total 13 cases (16.25%) among adolescent girls have presented with sexual assault, while rest of the cases include UTI, physical assault and others for medicolegal examination.

Group	Number	Percentage
Early adolescence (10-14 years)	24	10.5
Mid adolescence (15-17years)	47	20.6
Late adolescence (18-19 years)	157	68.9
Total	228	100

Table 1: Distribution of age of adolescents attending casualty.

Type	Number	Percentage (%)
True labour pain	29	19.6
Postdated pregnancy	15	10.1
Preterm labour	14	9.4
Prelabour rupture of membrane (PROM)	12	8.1

Pre eclampsia	9	6
Antepartum haemorrhage	7	4.7
Fetal growth restriction	3	2
Oligohydramnios	3	2
Rh negative pregnancy at term	4	2.7
Severe anemia in pregnancy	7	4.7
Moderate anemia in pregnancy	3	2
CPD in labour	2	1.2
Primi breech in labour	1	0.6
IHCP	1	0.6
Abortions	23	15.5
Ectopic pregnancy	4	2.7
Hyperemesis gravidarum	1	0.6
Total	138	93.2

Table 2: Obstetric emergencies of adolescents attending casualty.

Comorbidity	Number	Percentage (%)
Hypothyroidism	1	0.6
Jaundice	1	0.6
Seizure disorder	1	0.6
Diarrhoea	2	1.2
Psychiatric illness	1	0.6
Speaking difficulty	1	0.6
Others (Physical assault)	3	2
Total	10	6.8

Table 3: Comorbidities associated with teenage pregnancy at casualty.

Type	Number	Percentage (%)
Menstrual disorders	32	40
Ovarian tumor including cyst	15	18.75
Sexual assault	13	16.25
Others	20	25
Total	80	100

Table 4: Gynecological emergencies of adolescents attending casualty.

Type	Number	Percentage (%)
Dysmenorrhea	16	50
AUB	15	46.9
Cryptomenorrhoea	1	3.1
Total	32	100

Table 5: Distribution of menstrual disorder in adolescents attending casualty.

Discussion

Teenage pregnancy is an important entity worldwide, comprising of 11% of births in adolescents aged mostly 15-19 years. Among them, 90% seem to occur in low and middle income countries [1]. It is associated with increased risk of maternal and fetal complications like preterm delivery, prelabour rupture of membranes (PROM), pre eclampsia (PE), low birth weight babies, low Apgar scores and perinatal mortality [3].

Preterm labour pains (9.4%) and pre eclampsia (6%) are important obstetric complications as observed from our study. It is corroborated from other studies like Kirbas., *et al.* [4] which states 10.8% adolescent patients to be in preterm labour and 8.4% to have pre-eclampsia, and Abebe., *et al.* [5] which states 11.3% teenagers to develop pre eclampsia. Yadav., *et al.* [6] has also observed preterm delivery to be markedly high in adolescents and suggested socio-economic inferiority and biological immaturity to be important underlying causes for it. Irritability of uterus, sensitivity to dehydration and altered pregnancy related hormonal milieu promoting maternal development at expense of fetal well being are depicted as other possible causes for preterm labour [7]. Khashan., *et al.* [8] also reported preterm deliveries in both early and late age adolescent mothers. Abebe., *et al.* stated that teenagers were 2.87 times more likely to deliver prematurely than adult mothers. Same findings were also observed in studies in India, Turkey and Korea [9,10].

Pregnancy at early age and nulliparity are well known risk factors for pre-eclampsia, both applicable at large for adolescent mothers. The possible reasons for PE in this age group as suggested by Kirbas., *et al.* are nulliparity and markedly reduced rate of use of folic acid. Teenagers tend to develop PE 2.29 times more likely than adult mothers, though such findings have been found to be inconsistent with studies conducted in Pakistan and

Ankara [5]. Such differences have been explained by difference of preconceptional care and health care services in various countries, especially when use of folic acid has been considered as a contributor to PE.

Anemia in adolescent pregnancy is a modifiable complication. Our studies suggest 4.7% cases to have severe and 2% having moderate anemia while Pompeu., *et al.* reports 0.52% cases to be severely anemia, whilst a majority of 33.8% to be moderately anemic. Adolescence is a period of rapid mental and physical development and nutrition requirement is quite high due to this spurt. However, dieting out of concern for physical appearance seems to play a major role in nutritional inadequacy at this age group [11,12]. Hence iron deficiency is the major cause of anemia in adolescents and this is quite modifiable with counselling and proper health services in their pregnancies. It has been found that in untreated anemia, rates of prematurity and stillbirth have been higher [14].

Other obstetric complications have comparable results with our study showing 4.7% cases of antepartum haemorrhage and Abebe., *et al.* finding 3.6% cases, fetal growth restriction of 2% cases in our study and 3.4% cases in study of Kirbas., *et al.* Like prevalence of anemia, complications like postdatism and PROM have different results from our study- our study showing 10.1% cases of postdatism while Abebe., *et al.* has such finding in 31.5% cases; 8.1% of our cases have presented with PROM while only 2.7% cases have such findings according to Kirbas., *et al.* The difference in results may be attributed to the fact that patients in other studies have been followed up after admission to hospital, while we considered the immediate presenting complication of patients at casualty only.

Adolescents may not have the opportunity to receive adequate prenatal care, nutrition, access to social support services and may not be able to benefit from opportunities of early diagnosis and treatment of complications, mostly due to lack of knowledge and inadequate domestic and social support. This scenario is inflated to higher proportions in pandemic due to COVID-19.

According to WHO, at least 10 million unintended pregnancies occur each year among adolescent girls aged 15-19 years in the developing world. Of the estimated 5.6 million abortions that

occur each year among adolescent girls, 3.9 million are unsafe, contributing to maternal morbidity and mortality [2]. Sedgh., *et al.* [14] stated that proportion of teenage pregnancies ending in abortion ranged from 17% in Slovakia to 69% in Sweden. Many sexually active unmarried adolescents experience pregnancy, both unplanned and unwanted. This is mostly due to lack of information on contraceptive: improper use or non use of contraceptive, and some due to rape or incest- all ending in abortions due to societal fears or psychological issues.

In our study, the major cause of gynecological emergencies is found to be menstrual disorders (40%) which corroborates with all studies done in this age group for gynecological causes. However, the proportion of such cases slightly varies from other studies- 58.6% as stated by Goswami., *et al.* 67.1% as stated by Pegu., *et al.* [15]. Dysmenorrhea seems to be the leading cause of menstrual disorders (50%) presenting to our casualty in adolescents. Sometimes dysmenorrhea may be severe enough to prevent adolescent girls from going to school and curtail their day to day activities, thereby coming to casualty for management. Dysmenorrhea incidence of 69%-72.3% and 63.48% was reported by Prasad., *et al.* [16] and Samarth., *et al.* [17]. Abnormal uterine bleeding is common in this age group, owing mostly due to anovular cycles due to immature hypothalamo-pituitary axis. Our study documents 46.9% patients to have AUB, while higher incidences are recorded by Goswami., *et al.* (62.7%) and Pegu., *et al.* (55.1%). Cryptomenorrhoea, owing to imperforate hymen is diagnosed in 3.1% of our cases which has comparable results to other studies. This difference of some results may be due to the fact that patients attending casualty have been included in our study, while all other studies have focused on patients attending gynecology OPD as well as casualty. A majority of patients attending our hospital in adolescent age group with menstrual disorders are a regular follow-up of our Gynecology OPD and discussion of such patients is beyond the scope of this study.

Teenage girls presenting with pain abdomen with known case of ovarian tumors including cysts contribute to the second most important group comprising 18.75% of such population, which is similar to Goswami., *et al.* who found 15.3% of adolescent girls presenting with similar features. This finding is inconsistent with studies like Pegu., *et al.* who stated 0.6% cases and Kumari., *et*

al. [18] who found 4.5% cases with similar presentations. Sexual assault in adolescent age is an important majority attending our casualty (16.25%) while it differs from other studies- 2.4% as per Goswami, *et al.* 1.8% as stated by Kumari, *et al.* This is because our hospital is a major tertiary care referral centre for such medicolegal cases, including sexual assault needing intensive care management. Other categories include patients presenting with physical assault, UTI and those presenting to casualty for medical examination owing to various medicolegal cases.

Conclusion

Menstrual hygiene, sexual and reproductive health education in adolescents is an important aspect which is seldom focussed on in major parts of India. This results in lack of awareness, school absenteeism during menstruation, unwillingness to attend a gynecologist owing to embarrassment regarding discussion of gynecological problems, sexual abuse and inability to report them in proper time and place owing to societal pressures, unwanted pregnancies and undergoing criminal abortions at uncertified centres and thereby culminating in the delay in proper management of adolescent health and pregnancy, which is the main reason for morbidity and mortality in this age group. COVID-19 infection has added to this burden where teenagers are unable to attend OPDs at proper time and thereby presenting at casualty with higher severity of the condition. Hence, the national adolescent health program of India, Rashtriya Kishor Swasthya Karyakram (RKSK) has developed several provisions for education on these issues through Peer Education, Adolescent Health Day, and through peripheral health workers and establishment of Adolescent Friendly Health Clinics in nearly 7500 facilities.¹⁹ To overcome the further problems of lockdown and inability to attend adolescent services in person, there have been implementations by the WHO Collaborating Center for Training and Research in Adolescent Health who has developed a mobile App Teenage Health Guide for Android phones. These can be downloaded for free and the app does not ask for any private information, and can be accessed from home [19]. It is our duty to educate adolescent population at every chance available regarding the importance of their health and sexual issues in order to offer them brighter and better gynecological and reproductive lives.

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