

FETOMATERNAL OUTCOME OF SEVERE ANAEMIA IN TEENAGE PREGNANCY AT TERTIARY CARE HOSPITAL TIRUPATI, ANDHRA PRADESH

Dr B.Nirmala Devi¹ (Associate professor, GMH); Dr Gadi Madhavi¹ (Post Graduate, GMH), Dr T Bharathi¹ (Professor Superintendent, SVRRGGH, Tirupati), Dr Sreenivasarao Surisetty¹ (Associate professor, ACSR GGH, Nellore)

ABSTRACT

BACKGROUND-It was a prospective study of fetomaternal outcome of severe anaemia in teenage pregnancy at tertiary care hospital, GMH, Tirupati.

MATERIALS AND METHODOLOGY- A prospective hospital-based study was undertaken on 150 women attending at tertiary care centre, GMH, Tirupati from January 2021 to January 2022.

RESULTS- Among study population 31.3% had preterm delivery, 13.3% had postpartum hemorrhage, 10% had intrauterine growth restriction, 2.6% had puerperal sepsis and wound infections, 8% IUDs noted, failure or poor lactation seen in 2.6%, abruption is seen in 2%, placenta praevia is seen in 1.3%. 2.6% had cardiac failure. 20 cases of pregnancy induced hypertension were reported and not included in the study. Among study population, 39.3% babies had low birth weight, 3.3% still births 40.6% babies had NICU admission. Out of them 6.6% expired due to sepsis, 34% were discharged.

KEYWORDS-Anaemia, APGAR, IUD, NICU, WHO, GMH, IUGR, UNICEF

INTRODUCTION-

In recent years, adolescent pregnancy has become an important health issue in both developed and developing countries¹. WHO defines teenage pregnancy as pregnancy of the girl from the of age 10 to 19 years² and age being defined as her age at the time of delivery³. As per UNICEF, worldwide every fifth child is born to teenage mother⁴. The prevalence of anaemia among teenage girls was 56% in India⁵. According to the National family health survey number five conducted by the government of India from 2019- 2020 the prevalence of teenage pregnancy in India was 6.8% and in Andhra Pradesh it was 12.6%. Early marriages and teenage pregnancies are contributing factors for maternal and neonatal mortality and morbidity⁶. Anaemia is most the prevalent nutritional deficiency during pregnancy⁷. According to the National family health survey number five conducted from 2019- 2020 by the government of India prevalence of anaemia in pregnancy in India was 52.2% and in Andhra Pradesh it was 53.7%. Anaemia accounts for 20% of direct and 20% of indirect maternal deaths in India⁸. It is a significant complication of teenage pregnancy worldwide; as girls are still in growing period, pregnancy causes malnutrition which leads to anaemia interfering with their quality of life. The cause of anaemia might be due to poverty and ignorance affecting the productive and non-productive life of the individual. Severe anaemia can lead to preterm labour, abruptio placentae, placenta praevia, cardiac failure, post-partum haemorrhage, poor or failure of lactation and sepsis. Adverse effects in foetus are prematurity, low birth weight, intrauterine growth restriction, intrauterine death and stillbirth. Low APGAR score at birth, NICU admission and poor perinatal outcome are common in foetus of severe anaemic mothers. Low birth weight neonates and preterm labour and intrauterine death are due to severe maternal hypoxia. Present study helps to evaluate maternal and foetal outcome of severe anaemia in teenage pregnancy.

AIM AND OBJECTIVES

AIM:

To determine the prevalence and foetomaternal outcome of severe anaemia in teenage pregnancy at tertiary care hospital, Tirupati.

OBJECTIVES:

1. To find out prevalence of severe anaemia among teenage pregnancies.
2. To find out foetal outcome in teenage pregnancy with severe anaemia

INCLUSION CRITERIA:

1. All pregnant women of age less than 20 years attending GMH.
2. Willing to give consent for participating in study.
3. Intention to have antenatal check-ups and delivery at GMH.
4. Haemoglobin level <7 grams.
5. Gestational age >28 wks.

EXCLUSION CRITERIA:

1. Teenage pregnant women with chronic medical illness, gestational diabetes mellitus, and pregnancy induced hypertension.
2. Teenage pregnant women with blood dyscrasias and hemoglobinopathies.

MATERIALS AND METHODOLOGY**STUDY DESIGN:** A Prospective study**STUDY SUBJECTS:** Women attending antenatal op at GMH.**STUDY PERIOD:** One year following approval from ethical committee**STUDY AREA:** Government Maternity hospital, Tirupati**SAMPLE SIZE:** 200**STATISTICAL ANALYSIS:** Results and data will be analysed using MS excel Software, Epi SPSS22 version E.**ETHICAL ISSUES:**

Before collection of data all subjects were briefed about the purpose of the study. Written and informed consent was taken. All investigations were done free of cost.

This study was approved by the SV Medical college ethical committee in 3rd January 2020 with registration number: M190114056

Procedure:

All teenage pregnant women attending GMH with severe anaemia fulfilling inclusion criteria were included in the study. Data recorded. Informed, valid, written consent was taken. Demographic details like name, age, education, occupation, marital status, parity, address, socioeconomic status and history of antenatal check-ups were taken, complaints, symptoms of anaemia, history of diet intake, iron folic acid prophylaxis, previous treatment for anaemia were taken. All of them were admitted for inpatient treatment and were subjected to general, physical, systemic and obstetric examination and documented as per the proforma made for the study. The investigations done were haemoglobin estimation by sahli's method, complete blood picture with peripheral smear and blood indices, complete urine examination, stool for occult blood, cyst/ova, electrocardiography, echocardiography, thyroid profile. Patients with severe anaemia were treated with blood transfusion, followed by oral iron therapy or parenteral therapy. Regular follow up was done till term, admitted for delivery, careful intrapartum monitoring was done, labour progress was noted in partogram, operative intervention was done for obstetric indication. Active management of third stage of labour was done. The perinatal outcome (live birth, still birth, intrauterine deaths, foetal growth restriction) was noted. Weight of new born, their APGAR score at 1 and 5 min were recorded. Neonate was examined by paediatrician, admission to NICU was done based on requirement. Both mother and neonate were followed up till discharge.

OBSERVATION AND RESULTS

12,153 deliveries were conducted during the study period. Out of them 1003 teenage pregnancies were noted. The prevalence was 8.2%. Out of 1003 teenage pregnancies, 793 were anaemic. Out of which 150, were severe anaemic. The prevalence of severe anaemia in teenage pregnancy according to present study was 18.9%.

The sample considered was 200, but only 150 cases reported were fulfilling the inclusion criteria during study period. 150 cases were followed and final results were tabulated as below

TABLE-1: DISTRIBUTION OF CASES INTO ANAEMIC AND NON ANAEMIC GROUP

S.NO	DEGREE OF ANAEMIA	NUMBER OF CASES	PERCENTAGE
1	Non anaemic	210	20.9%
2	Anaemic cases	793	79.06%
	Total	1033	100%

Out of 1003 teenage pregnancies noted during study period 793 (79.06%) cases were anaemic and 210 (20.9%) cases were non-anaemic. With prevalence - 79.06%.

TABLE-2: DISTRIBUTION OF CASES BASED ON DEGREE OF ANAEMIA

S. NO	DEGREE OF ANAEMIA	NUMBER OF CASES	PERCENTAGE
1	Mild anaemia	362	45.64%
2	Moderate Anaemia	181	22.82%
3	Severe anaemia	150	18.9%
	Total	793	100%

Among the teenage pregnancies noted during study period 793 were anaemic among them 362 were of mild anaemia, 181 were of moderate anaemia, 150 were of severe anaemia.

TABLE-3: AGE DISTRIBUTION OF STUDY POPULATION

S.NO	AGE	NO OF PATIENTS	PERCENTAGE
1	13yrs	0	0
2	14yrs	0	0
3	15yrs	0	0
4	16yrs	0	0
5	17yrs	10	6.6%
6	18yrs	70	40%
7	19yrs	80	53.3%
	Total	150	100%

Majority of cases 53.3% are of 19yrs age group

TABLE-4: PREGNANCY BOOKING STATUS OF STUDY POPULATION

S.NO	STATUS	NO OF CASES	PERCENTAGE
1	Booked	45	30%
2	Unbooked	105	70%
	Total	150	100%

Majority of cases 70% are unbooked.

TABLE-5: RESIDENTIAL DISTRIBUTION OF STUDY POPULATION

S.NO	ADDRESS	NUMBER	PERCENTAGE
1	Urban	20	13.3%
2	Rural	130	86.6%
	Total	150	100%

86.6% of cases were of rural background.

TABLE-6: EDUCATIONAL STATUS OF STUDY POPULATION

S.NO	LITERACY	NUMBER OF CASES	PERCENTAGE
1	Illiterates	50	33.3%
2	Primary education	80	53.3%
3	Secondary education	20	13.3%
	Total	150	100%

53.3% of cases had primary education, 33.3% are uneducated and 13.3% had secondary education.

TABLE-7: STUDY POPULATION ACCORDING TO OCCUPATION:

S.NO	EMPLOYMENT	NO OF CASES	PERCENTAGE
1	Employed	30	20%
2	Unemployed	120	80%
	Total	150	100%

Among study population 80% are unemployed, remaining 20% are employed.

TABLE-8: SOCIOECONOMIC STATUS OF STUDY POPULATION BY BG PRASAD CLASSIFICATION

S.NO	SOCIAL CLASS	NO OF CASES	PERCENTAGE
1	Upper class	0	0
2	Upper middle class	0	0
3	Middle class	0	0
4	Lower middle class	20	13.3%
5	Lower class	130	86.6%
	Total	150	100%

86.6% of cases belong to low class, 13.3% belong to lower middle class.

TABLE-9: CLINICAL FEATURES IN STUDY POPULATION

S.NO	CLINICAL FEATURES	NUMBER OF CASES	PERCENTAGE
1	Weakness/ fatigability	140	93.3%
2	Dyspnea /Palpitations	91	39.3%
3	Pedal oedema	124	82.6%
	Total	355	100%

In the present 93.3%, 39.3%, 82.6% of study population had complaints of weakness/fatigability, dyspnoea /palpitations and pedal oedema respectively.

TABLE-10: STUDY POPULATION ACCORDING TO TIME OF DELIVERY

S.NO	TIME OF DELIVERY	NUMBER OF CASES	PERCENTAGE
1	Preterm	47	31.3%
2	Term	88	58.6%
3	Post term	15	10%
	Total	150	100%

Majority of cases 58.6% had term delivery, 31.3% had preterm delivery, 10% had post term delivery

TABLE-11: STUDY POPULATION ACCORDING TO MODE OF DELIVERY

S.NO	MODE OF DELIVERY	NUMBER OF CASES	PERCENTAGE
1	Vaginal delivery	110	73.3%
2	Instrumental	25	16.6%
3	Caesarean delivery	15	10%
	Total	150	100%

73.3% cases had vaginal delivery, 16.6% had instrumental delivery, and 10% had Caesarean delivery

TABLE-12: STUDY POPULATION ACCORDING TO MATERNAL COMPLICATIONS

S.NO	MATERNAL COMPLICATIONS	NUMBER OF CASES	PERCENTAGE
1	Intrauterine growth restriction	15	10%
2	Intrauterine death	12	8%
3	Abruptio placenta	3	2%
4	Placenta praevia	2	1.3%
5	Cardiac failure /Shock	4	2.6%
6	Preterm delivery	47	31.3%
7	Postpartum haemorrhage	20	13.3%
8	Poor/failure of lactation	4	2.6%
9	Puerperal sepsis/wound infection	4	2.6%
10	Subinvolution of uterus	0	0

Among study population 31.3% had preterm delivery, 13.3% had postpartum haemorrhage, 10% had Intrauterine growth restriction, 2.6% had puerperal sepsis /wound infections, 8% IUDs noted, failure or poor lactation seen in 2.6%, abruption is seen in 2%, placenta praevia is seen in 1.3%. 2.6% had cardiac failure.

TABLE-13: MATERNAL MORBIDITY AND MORTALITY AMONG STUDY POPULATION

S.NO	HEALTH STATUS	CASES	PERCENTAGE
1	Morbidity	107	71.33%
2	Mortality	1	0.66%

TABLE-14: STUDY POPULATION ACCORDING TO FOETAL OUTCOME

S.NO	FOETAL OUTCOME	NUMBER OF CASES	PERCENTAGE
1	Low birth weight	59	39.3%
2	Intrauterine death	12	12%
3	Still birth	5	5%
4	NICU admission	61	40.6%
	Discharged	51	34%
	Expired	10	6.6%
5	Active and healthy	72	48%
6	Prematurity	47	31.3%

Among study population,39.3% babies had low birth weight, 8% IUDs noted, 3.3% still births noted,40.6% babies had NICU admission (out of them 6.6% expired ,34% were discharged).

TABLE-15: DISTRIBUTION OF NEONATES ACCORDING TO APGAR SCORE

S.NO	APGAR	NUMBER OF CASES	PERCENTAGE
1	8-10	98	65.3%
2	6-8	25	16.6%
3	4-6	5	3.3%
4	2-4	5	3.3%
5	0	17	11.3%
6	Total	150	100%

65.3% babies had APGAR of 8 at 1 minute and 10 at 5 minutes, 16.6% babies had APGAR of 6 at 1 minute and 8 at 5 minutes, 3.3% babies had APGAR of 4 at 1 minute and 6 at 5 minutes, 3.3% babies had APGAR of 2 at 1 minute and 4 at 5 minutes, 11.3 % babies had APGAR 0.

TABLE-16: PERINATAL MORBIDITY AND MORTALITY

S.NO	HEALTH STATUS	CASES	PERCENTAGE
1	Morbidity	61	40.66%
2	Mortality	27	18%

Out of 27 perinatal deaths 12 were IUDs, 5 were stillbirths, 10 were neonatal deaths. The aetiology for neonatal deaths was neonatal sepsis (5 neonates), severe birth asphyxia (5 neonates).

DISCUSSION

12,153 deliveries were conducted during the study period, 1003 teenage pregnancies were noted. With the prevalence of severe anaemia 18.9% in present study. In the present study the prevalence of teenage pregnancy was 8.2%, this can be compared with studies done by Rita D et al⁹ and Yasmin et al¹⁰ it was 10.26%,5.10% respectively. In the present study prevalence of anaemia in teenage pregnancy was 79.06%. This can be compared with study done by Rita D et al⁹ in which it was 79.2%.In a study done by Maria pinho pompeu et al¹³ in which 41.27% prevalence was seen.

1. Description of socio demographic variables:

Majority of cases 53.3% were of 19yrs age group and 86.6% of them were of rural background, remaining 13.3% were of urban background. In a study by Alka Batar et al¹⁸ 72.8% were of rural and 27.1% were of urban background. In a study by Ali et al¹⁹ 81.2% were of rural background and 18.8 % were of urban background. The prevalence of severe anaemia in teenage pregnancies was more in rural areas. Majority of cases 53.3% are having primary education, 33.3% are uneducated and 13.3% had secondary education. Majority of cases 80% are unemployed, remaining 20% are employed. Prevalence of severe anaemia was high in uneducated and unemployed group.

In present study majority of cases 86.6% belong to low class, this can be comparable to study conducted by Rameshwari et al¹⁵ in which 78% were of low socioeconomic status. In a study by Nirmaladevi et al¹⁴ 88.65% were of low socioeconomic status and in a study by Sangeta et al¹⁶ 41% were of low socioeconomic status. Low socioeconomic status is a risk factor for anaemia.

2. Description of Booking Status:

Majority of cases 70% were unbooked. Incidence of severe anaemia was more in unbooked cases. This is comparable to study done by Rameshwari et al¹⁵ in which 76% were unbooked cases and Nirmaladevi et al¹⁴ 67.4% were unbooked.

3. Description of Time of delivery:

In the present study 31.3% had preterm delivery, 58.6% had term delivery, and 10% had post-term delivery. In studies done by Youssry MA et al¹², Nirmaladevi et al¹⁴, Rameshwari et al¹⁵, Rohilla et al²⁰ in which 12.9%, 44.68%, 40%, 18.75% preterm deliveries were noted respectively.

4. Description of Mode of Delivery:

In the present study majority of cases 73.3% had vaginal delivery, 16.6% had instrumental delivery and 10% had caesarean delivery. In studies done by Youssry MA et al¹², Nirmaladevi et al¹⁴, Alka Batar et al¹⁸, Ghimire RH et al¹⁷ in which 40.3%, 10%, 42.31%, and 22% cases had caesarean delivery respectively.

5. Description of Maternal complications during antenatal period :

In the present study 10% intra uterine growth restriction cases was noted, this can be compared to studies done by Nirmaladevi et al¹⁴, Rameshwari et al¹⁵, Ghimire RH et al¹⁷, Rohilla et al²⁰ in which 12.77%, 14%, 20%, 33.33% intrauterine growth restriction was noted respectively. In the present study 8% IUDs were noted, compared to studies done by Ghimire RH et al¹⁷ in which 6% IUDs noted.

In the present study abruptio placenta was noted in 2% cases, compared to studies done by Nirmaladevi et al¹⁴, Ghimire RH et al¹⁷, Rohilla et al²¹, in which 8.5%, 3% and 3.12% abruptio placenta cases were noted respectively.

In the present study placenta praevia was noted in 1.3% of study population, compared to studies done by Nirmaladevi et al¹⁴ in which 2% had placenta praevia.

In the present study 2.6% congestive cardiac failure cases noted, where as in studies done by Nirmaladevi et al¹⁴, Rameshwari et al¹⁵, Alka Batar et al¹⁸, Rohilla et al²⁰ in which 1.06%, 8%, 6.15%, 9.37% of congestive cardiac failure cases noted respectively.

6. Description of Maternal complications during labour

In about 10% of normal vaginal delivery precipitate labour was noted. In the present study postpartum haemorrhage was noted in 13.3% due to atonic PPH. In studies done by Youssry MA et al¹², Nirmaladevi et al¹⁴, Rameshwari et al¹⁵, Rohilla et al²⁰ in which 5.4%, 6.4%, 44%, 14% and 25.55% cases had postpartum haemorrhage respectively.

7. Description of puerperal complications:

In the present study puerperal sepsis was noted in 2.6% (4 cases) of study population. Out of 4 cases 3 cases had wound gaping. In studies done by Youssry MA et al¹², Alka Batar et al¹⁸, Rameshwari et al¹⁵, Ghimire RH et al¹⁷ in which 3.8%, 10%, 18% and 16% cases had puerperal sepsis respectively poor or failure of lactation was noted in 2.6% of study population, comparable to study done by S Patra et al²² in which 6.9% study subjects had lactation failure.

8. Description of Neonatal complications

In the present study 48% neonates were born with good apgar score. In the present study 39.3% neonates were of low birth weight (59 neonates), among them 47 neonates were premature babies and 12 neonates were IUGR babies. In studies done by Youssry MA et al¹², Alka Batar et al¹⁸, Rameshwari et al¹⁵, Ghimire RH et al¹⁷ in which 11.3%, 47.69%, 50%, and 22% of neonates were of low birth weight respectively. In the present study 31.3% premature neonates were noted. In studies done by Youssry MA et al¹², Rohilla et al¹⁹, Nirmaladevi et al¹⁴, Rameshwari et al¹⁵ in which 12.9%, 18.75%, 44.68%, 40% premature neonates were noted respectively. In the present study 40.6% (61 neonates) NICU admissions were noted 47 were premature babies and 12 were IUGR babies can be compared to studies done by Alka Batar et al¹⁸, in which 43.08% NICU admissions noted. Out of 40.6% NICU admission neonates 6.6% expired and 34% were discharged. Among study population, 65.3% babies had APGAR of 8 at one minute and 10 at five minutes, 16.6% babies had APGAR of 6 at one minute and 8 at five minutes, 3.3% babies had APGAR of 4 at one minute and 6 at five minutes, 3.3% babies had APGAR of 2 at one minute and 4 at five minutes, 11.3% babies had APGAR 0. Maternal mortality in our study is only 0.66%. a study done by Riffat J et al²² which has 5.92% of maternal mortality.

In the current study 18% perinatal deaths noted, this can be compared to studies done by Ghimire RH et al¹⁷, in which 11% perinatal deaths noted respectively. In the present study 6.6% neonatal deaths noted, this can be compared to studies done by Patra S et al²¹ and Rohilla et al²⁰ in which 5.38%, 4.16% neonatal deaths were noted respectively.

SUMMARY

Aim was to study prevalence of severe anaemia, fetomaternal outcome of severe anaemia in teenage primigravida. Teenage pregnant with chronic medical illness, blood dyscrasias and haemoglobinopathies were excluded. Demographic details like name, age, education, anemia correction were taken from study population. All of them were admitted for inpatient treatment and subjected to general, physical, systemic and obstetric examinations. The investigations done were haemoglobin estimation by sahli's method, complete blood picture with peripheral smear, blood indices and complete urine examination. Stool examination done for occult blood, cyst and electrocardiography, echocardiography and thyroid profile were done. All severe anaemia were

given blood transfusion, number of transfusions depending on haemoglobin level followed by iron oral therapy or parenteral therapy. Study participants with gestational age away from term were discharged after correcting anaemia and were regularly followed up to term, re admitted for delivery, labour was monitored. Mode of the delivery, maternal and foetal outcome was noted.

CONCLUSION

Pregnancy and childbirth has more risk in adolescents than in adults as adolescent girls are not yet mature physically and emotionally for motherhood. Most of the teenage girls are unaware of the consequences of severe anaemia due to illiteracy and ignorance. Literacy, overall health and nutritional status of adolescent girls has to be improved before they enter reproductive years by new programs and strategies. Government of India has launched anaemia prophylaxis programmes like MUKTH BHARATH to supplement iron folic acid to all school children through field health care workers. Awareness should be created to avoid early marriage and teenage pregnancy through public health programmes by community participation and non-governmental organizations. A collaborative and holistic approach is ensured with private and government health delivery systems to prevent anaemia among adolescents and women of reproductive age. Early antenatal registration, early diagnosis and effective treatment of anaemia helps in better outcomes.

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