



Perinatal Outcome in Twin Pregnancy at Khaipur Medical College, Khaipur Mirs, Pakistan

**Nusrat Fozia Pathan¹, Shazia Jamali², Maqsood Ahmed Siddiqui³,
Khushi Muhammad Sohu⁴, Ameer Ali Jamali⁵, Asma Naz² and Arslan Ahmer^{6*}**

¹Department of Gynae and Obstetrics, Khaipur Medical College (KMC), Khaipur Mirs, Sindh, Pakistan.

²Department of Gynae and Obstetrics, People's University of Medical and Health Sciences for Women (PUMHSW), Nawabshah, Sindh, Pakistan.

³Department of Anesthesiology, Ghulam Muhammad Mahar Medical College (GMMMC), Sukkur, Sindh, Pakistan.

⁴Department of Surgery, Khaipur Medical College (KMC), Khaipur Mirs, Sindh, Pakistan.

⁵Department of Paediatrics, People's University of Medical and Health Sciences for Women (PUMHSW), Nawabshah, Sindh, Pakistan.

⁶Institute of Pharmaceutical Sciences, People's University of Medical and Health Sciences for Women (PUMHSW), Nawabshah, Sindh, Pakistan.

Authors' contributions

This work was carried out in collaboration among all authors. Author NFP designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors SJ, MAS, KMS, AAJ, AN and AA managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i1831315

Editor(s):

(1) Dr. Rafik Karaman, Al-Quds University, Palestine.

Reviewers:

(1) Nikolaos Antonakopoulos, University of Athens, Greece.

(2) Molla Yigzaw Birhanu, Debre Markos University, Ethiopia.

(3) Aliko Tympa, University of Athens, Greece.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/66846>

Original Research Article

Received 19 January 2021

Accepted 23 March 2021

Published 29 March 2021

ABSTRACT

Objective: To determine the perinatal outcome of twin pregnancy and to find out the frequency of twin deliveries in hospital based population.

Study Design: Descriptive case series.

Place and Duration of Study: The study was conducted over a period of 02 Year 1st January 2018 to 31st December 2019 in the Obstetrics and Gynaecology Department at KMC Khaipur Mirs, Sindh Pakistan.

*Corresponding author: E-mail: arslan.ahmer@gmail.com;

Methodology: All the patients of age 20-35 years with twin pregnancies of gestational age above 30 weeks presenting in labour ward of KMC Khairpur Mirs were studied. A detailed history was taken, general physical (G.P) examination and obstetrical examination performed, targeted investigations carried out to detect various fetal complications. Patients were assessed for a mode of delivery, records for data like age, gestational age, weight of baby, APGAR score expressed in term of mean±SD and data like perinatal mortality, prematurity, intra uterine growth restriction (IUGR), the weight of baby and APGAR score expressed in terms of frequencies and percentages on SPSS version 20.

Results: In this study total numbers of deliveries were 7200, among them 83 were twin pregnancies the frequency of twin was 1.15%. Booked cases were 24.1%, unbooked was 75.9%. The highest incidence of 42.2% of twin gestation was seen in women between ages 31-35 years, the mean age of patients was seen 30.1±4.1 and regarding the parity incidence was high 54.2% in multiparous 1-5. The total number of preterm deliveries was 45(55.2%), gestational age was (35-36+6dnys) weeks in 22.89% of cases, and the mean gestational age of patients was 35.7±2.5. Perinatal mortality was 38(22.9%), stillborn and early neonatal deaths (ENND) were 18.4% and 36.8% and common in twin-2.

Conclusion: Twin pregnancy is-a-high-risk-pregnancy still is a major obstetrical and perinatal challenge. The frequency of twin pregnancy seen in this study is 1.15% unbooked and unsupervised pregnancies are more common i.e 75.9%. Prematurity is common perinatal morbidity 51.20%. perinatal mortality is 22.9% and highest in twin-2.

Keywords: Twin pregnancy; perinatal Mortality; low APGAR score; low birth; weight; intrauterine growth restriction and prematurity.

1. INTRODUCTION

Twin pregnancy is considered high-risk pregnancy because perinatal mortality and morbidity in twin are higher as compared to singletons, mainly caused by low birth weight and prematurity, twin-twin transfusion syndrome but also by mal-presentation and mode of delivery [1]. The perinatal mortality rate in twin as reported to be 3-11 times higher than in singletons [2]. Multiple gestations are associated with increased complications in utero as compared to singleton gestation, with an increased reported incidence of early pregnancy loss, congenital anomalies, intrauterine demise, TIJGR, prematurity, low birth weight, Monochorionicity increases the risk of adverse perinatal outcome whereas the effect of zygosity is less clear [3]. Twin are dizygotic (dizygous, binovular, fraternal or non identical) result from the fertilization of two independently released ova by two different sperms. All these twins are dichorionic and diamniotic. Monozygotic twin (monozygous, uniovular, identical) arise from the splitting of single fertilized egg within the first 14 days after fertilization. Monozygous twins may be Monochromic diarnniotic (MCDA), Monochorionic monoamniotic (MCMA), or conjoined [4]. The considerable geographical and temporal variation influence the incidence of dizygotic or non-identical twins, twinning

occurs fr m 4/1000 births in Japan to 54/1000 in Nigeria and common in older mothers due to their rising FSH, in contrast monozygous occurs with constant incidence of 3.9/1000, the twinning rate in UK is from 9.8 to 14.7/1000 maternities, increase in incidence due to Assisted reproductive technique (ART) [5,6].

The aim of the study is to determine the perinatal outcome in twin pregnancy.

2. OPERATIONAL DEFINITIONS

2.1 Perinatal Outcomes

Prematurity (birth occurring before 37 completed weeks) 30-50%.

Perinatal mortality (death of fetus occurring after 24 weeks of pregnancy and one week after birth) 17.02%⁶.

Low birth weight (birth weight<2.5kg)63.3%⁶.

Low APGAR score (APGAR score<07) 25.05%⁶.

Intrauterine growth restriction (failure of the fetus to achieve its growth potential) 25-33⁴.

3. METHODOLOGY

3.1 Study Design, Setting and Period

Descriptive case series conducted at all obstetrics and gynaecology wards of KMC Khairpur Mirs Sindh Pakistan from 02 Year 1st

January 2018 to 31st December 2019. Based on the minimal prevalence, anticipated proportion of perinatal mortality rate 17.02% with bound of error 8% and 95% confidence level, total sample size was 83. Non-probability purposive sampling was done.

3.2 Sampling Method Data Collection Tool and Method

83 cases of twin pregnancy collected from all units of obstetrics and gynaecology KMC Khairpur were studied. Patients were carefully evaluated by detailed history, clinical examination after taking informed consent and by ultrasound pelvis. Outcome of twin pregnancy as mentioned in operational definition will be recorded in proforma attached.

3.3 Data Management and Analysis

Data will be analyzed by SPSS version 20.0 numerical data like gestational age, perinatal mortality, prematurity, intrauterine growth restriction, weight of baby and APGAR score was expressed in terms of frequencies and percentages. 95% confidence interval will be computed for all outcome of interest. Stratification of age and parity will be due to seen their effect on outcome.

3.4 Eligibility Criteria

3.4.1 Inclusion criteria

Women with U/S determined twin pregnancy of 30 weeks and onwards. Between ages 22-35 years of age were included. Women who conceive after assisted reproductive techniques.

3.4.2 Exclusion criteria

Women with medical disorder example cardiovascular disease diabetes, known case hypertension, renal disease were excluded.

4. RESULTS

The mean age of patients in this study was 30.1 (SD) with a 95% Confidence interval of 29.18 to 31.01. The mean gestational age of patients in this study was 35.7(SD) with a95% confidence interval of 35.22 to 36.32. Mean APGAR score of twin-1 was 7.3 (SD) with a 95% confidence interval of 6.84 to 7.81. Mean APGAR score of

twin-2 was 6.5 (SD) with a 95% confidence interval of 5.99 to 7.03 Table 1. Incidence of twin gestation in this study is 1.15%. Total numbers of deliveries 7200 were carried out here Table 2. In this study out of 83 women with twins, 20(24.1%) were booked antenatal patients, while 63(75.9%) were received through emergency or referred to KMC hospital khairpur Table 3. The highest percentage of twin gestation was between 31-35 years (49.4%) with lowest incidence at 20-25 years of maternal age (19.3%) Table 4. The percentage of twin gestation at parity 1-5 is highest 45(54.2%) and lowest percentage of twins who were primiparous 15(18.1%) Table 5. In this study total number of preterm deliveries were 45(54.2%) common gestation age at preterm delivery occurred was (35-36 + 6 days) weeks Table 6. Common presentation of twin at the time of delivery is vertex-vertex 38(45.8%) and less common is transverse-vertex 1 (1.2%) and transverse - Breech 1(1.2%) Table 7. 50(60.2%) twins delivered by vaginal route and 33(39.8%) delivered by caesarean section. In this study perinatal mortality was found total 38, still born in twin-1 5(13.2%), 7(18.4%) in twin-2 and 12(31.6%) were ENND in twin-1 and 14(36.8%) in twin-2 Table 8. The highest frequency of perinatal mortality was seen in 31-35 years of age group, 6 in twin-1 and in twin-2 Table 9. Parity stratification displayed separately in both twins, the highest frequency of perinatal mortality was seen in P1-5 years of age group, 8 in twin-1 and 9 in twin-2 Table 10.

5. DISCUSSION

Twin pregnancy still represents a high risk pregnancy. Management of twin pregnancy is effective when the diagnosis has been made early in pregnancy. We assessed the frequency of various maternal, fetal and neonatal complications. Incidence of twin deliveries in this one year done on 7200 maternities is 1.15% which is quite less than coated in other studies from eastern part of country like Malik [7] and Rana S [8]. The reason could be that eastern part of country is more populous and population is comparatively more aware and public services are utilized more often. However one of the US study has showed nearly same incidence [9]. In this study we have seen that highest frequency of twin pregnancies is among women between 31 to 35 years of age, the mean maternal age seen was 30.1±4.1(mean ±SD) other local and foreign studies show similar relation between

Table 1. Descriptive statistics: continuous variables of the study (N=83)

Variables	Mean±SD	95%CI
Age	30.1±4.1	29.18-31.01
Gestational age	35.7±2.5	35.22-36.32
LBW in kg(Twin-1)	2.2±0.4	2.14-2.33
LBW in kg(Twin-2)	2.1±0.4	2.05-2.33
Apgar score(Twin-1)	7.3±2.2	6.84-7.81
Apgar score(Twin-2)	6.5±2.3	5.99-7.03

Table 2. Incidence of twin gestation

Total number of Deliveries	Number of twin Deliveries	Percent
7200	83	1.15

Table 3. Booking status (N=83)

Cases	Frequency	Percentage
Unbooked	63	75.9%
Booked	20	24.1%
Total	83	100%

Table 4. Maternal age (N=83)

Maternal age	Frequency	Percentage
20-25	16	19.3%
26-30	26	31.3%
31-35	41	49.4%
Total	83	100%

Table 5. Twin gestation at parity (N=83)

Parity	No.	Percentage
Primiparous	15	18.1
Para 1-5	45	54.2
Para 6-10	23	27.7
Total	83	100.0

Table 6. Number of preterm deliveries (N=83)

Gestation in weeks	No.	Percentage
30-32+6 days	10	12.0
33-34+6 days	19	19.3
35-36+6 days	19	23.0
37-36+6 days	30	36.1
39-40+6 days	8	9.6
Total	83	100.0

maternal age and twin gestation [10,11]. Ratio between booked and un booked cases showed that there was a major lack of antenatal care, only 24.1% were booked and 75.9% were un booked. The unsupervised pregnancies with twin gestation are liable to show high perinatal morbidity and mortality. So this was seen in my study where 54.2% women delivered preterm

babies with mean gestational age of 35.7±2.5, whereas in European studies the incidence of prematurity is 31.3% [12]. However other European studies also show a high incidence of prematurity near 50%¹³. This seems to be main cause of perinatal mortality. In my study and supported by other studies perinatal mortality is 10 times that of singletons [13-15]. The perinatal

mortality rate associated with twin pregnancy is four times than the singleton pregnancy given by one Pakistani study [8]. However in some other coated studies, perinatal loss was seen 65/1000, 102/1000 by Jeesa EO [16] and 40/1000 by Pons JC and colleagues [17]. In my study the incidence of IUGR was 12.04% which is comparable with the study by Chang YL [36], but a high incidence is reported by Luesely DM, that is 33% [18]. Main indication for NICU admission was pre-maturity and LBW and others were IUGR, birth asphyxia, neonatal jaundice and meconium aspiration. A good APGAR score was seen in first twin compared to the second twin, with mean APGAR score of twin-1 was 7.3 ± 2.2 and in twin-2 was 6.5 ± 2.3 in my study so necessitate continuous EFM during all stages of labour for second twin to avoid birth asphyxia [19]. All though C/S does not improve fetal outcome if done for fetal distress [20]. Regarding mode of delivery, vaginal delivery rate was 60.2% and common presentation was vertex-vertex 45.8%, vertex-breech 15.7%, breech-breech 12%, breech-vertex was 14.5%, vertex-transverse 7.2%, and transverse-vertex was 1.2%, breech-transverse 2.4% and transverse-breech 1.2%. According to European data approximately 40% of twins will present with vertex-vertex about 40% vertex-non vertexes, about 20% vertex-either vertex or non vertex [21]. The incidence of normal vaginal deliveries and C/S given by one Pakistani study is 67% and 33% [22]. C/S rate is found quite high at our set up because of tertiary care hospital and the ratio of referral cases also took part in increased incidence of C/S but in another study by Melchor JC, the incidence of C/S is 21.9% to 47% [23], and abnormal presentation played a significant role in increased rate of C/S [24] but study by Samra found that incidence of vaginal delivery is 63.9% and C/S rate is 36.1% and she found

common indications for C/S are previous C/S, breech presentation and fetal distress [25]. Caesarean section rate in this study was 39.8%, instrumental delivery rate was 8% for first twin and 12% for second twin, in study by Bangash, the instrumental delivery rate is 30% which is more than in my study. This may be because instrumental vaginal delivery is avoided by junior labour ward staff during odd hours of the day. Most common indication for C/S was malpresentation 36.4% others are previous C/S, abnormal labour, pre-eclampsia, IUGR, fetal distress. In another study by Samra that incidence of vaginal delivery is 63.9% and C/S rate is 36.1%. Both are more than in my study common indications are previous C/S, breech presentation, and fetal distress [25]. The incidence of prematurity and low birth are more common in twin pregnancy, in my study mean LBW 2.2 ± 0.4 was seen in twin-1 and 2.1 ± 0.4 was seen in twin-2 which leads to high perinatal morbidity and mortality. Different treatment modalities have been advocated for the treatment of preterm labour like hospitalization, bed rest, tocolysis, but controversy exist over their beneficial role in the prevention of preterm labour. A high perinatal morbidity and mortality in this study is seen between ages of 31-35 years of age parity of 1-5, this may be because of more subjects fall into this group but further research with a largest sample will be needed to prove significance of this relation. Twin pregnancy should be managed as high risk pregnancy. Most of the complications can be avoided and perinatal outcome improved by early detection and regular follow up. The need for awareness of importance of regular antenatal surveillance, with realization of benefits of hospital delivery is essential this can be achieved by improving the standard of health care department and awareness in our country.

Table 7. Common presentation (N=83)

Presentation of twin at the time of delivery	No.	Percentage
Vertex-Vertex	38	45.8
Vertex-Breech	13	15.7
Breech-Breech	10	12.0
Breech-Vertex	12	14.5
Vertex-Transverse	9	7.2
Transverse-Vertex	1	1.2
Breech-Transverse	2	2.4
Transverse-Breech	1	1.2
Total	83	100.0

Table 8. Perinatal mortality

Perinatal mortality	No.	Percentage
	38	22.9%

Table 9. Perinatal mortality (N=83)

Age group	Twin-1		Total	Twin-2		Total
	Yes	No		Yes	No	
20-25	5	11	16	6	10	16
26-30	9	20	26	7	19	26
31-35	6	35	41	00	33	41
Total	17	66	83	21	62	83

Table 10. Perinatal mortality

Parity	Twin-1		Total	Twin-2		Total
	Yes	No		Yes	No	
Primiparous	4	11	15	4	11	15
P1-05	8	37	45	9	36	45
P6-10	5	18	23	8	15	23
Total	17	66	83	21	62	83

6. CONCLUSION

Twin pregnancy is a high risk pregnancy diagnosis before delivery is important. Perinatal morbidity and mortality remains very high in twin pregnancy. Our results showed that twin pregnancy is a high risk pregnancy, high rate of complications affect the perinatal outcome.

As multiple pregnancies is high risk pregnancy, so requires vigilant antepartum, intrapartum and postpartum care. Therefore twin delivery should be conducted in fully equipped hospital delivery is important. The mode of delivery should be based upon presentation, rather than the estimated birth weight. Combined obstetrical and pediatric care is needed to identify the complications, and proper antenatal follow up and hospital delivery at well equipped hospital, with NICU facility could be offered this may be the sole intervention to reduce perinatal morbidity and mortality in twin gestation. The successful management of these pregnancies results in two healthy babies. Good nutrition, adequate rest, early booking and regular antenatal visits can reduce complications and improve perinatal outcome.

CONSENT

Written consent was taken from subjects and next of kin.

ETHICAL APPROVAL

The Ethical Review Committee gave ethical review approval for this study.

ACKNOWLEDGEMENTS

We would like to thank the all contributors and staff and other persons for providing useful information.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Santana DS, Silveira C, Costa ML. et al. Perinatal outcomes in twin pregnancies complicated by maternal morbidity: evidence from the WHO Multicountry Survey on Maternal and Newborn Health. BMC Pregnancy Childbirth. 2018; 18:449.
2. Haest KM, Roumen FJ, Nijhuis JG. Neonatal and maternal outcomes in twin gestations > or =32 weeks according to the planned mode of delivery. Eur J Obstet Gynecol Reprod Biol. 2005;123:17-21.
3. Dubé J, Dodds L, Armson BA. Does chorionicity or zygosity predict adverse

- perinatal outcomes in twins? Am J Obstet Gynecol. 2002;186:579-83.
4. Siddiqui F, McEwan A. Twins. Obstet Gynecol Reprod Med. 2007;17:289-95.
 5. Okunade, Kehinde, et al. "Review of twin deliveries and fetomaternal outcomes in a Tertiary Hospital in Lagos, Southwest Nigeria." The Nigerian Journal of General Practice. 2018;16(1):6.
 6. Duncan KR. Multiple pregnancy. Curr Obstet Gynecol. 2001;11:211-17.
 7. Malik MS, Rashid U. Complications of twin gestation. Biomedica. 1998;14:22-6.
 8. Rauh-Hain JA, Rana S, Tamez H, Wang A, Cohen B, Cohen A. Risk for developing gestational diabetes in women with twin pregnancies. J Matern Fetal Neonatal Med. 2009;22:293-9.
 9. Ziadeh S. Outcome of twin pregnancies in North Jordan. J Obstet Gynaecol. 2000;20:492-4.
 10. Crowther CA, Dodde JM. Multiple pregnancies. In: James DK, Steer PJ, Weiner CP, Gonick B, editors. High risk pregnancy: management option. Philadelphia: Saunders. 2006;127-92.
 11. Akhtar S, Asif S. Twin gestation antenatal complications and fetal outcome. Pak J Obstet Gynaecol. 1996;9:23-6.
 12. Malone FD, D'Allon ME. Multiple gestation: Clinical characteristics and management. In: Creasy RK, Resnik R, Imas JD, Lockwood CJ, Moore TR, Frazier L, editors. Creasy and resnik's maternal-fetal medicine: Principles and practice. Philadelphia, WB Saunders. 2008;453-76.
 13. Keith L, Ellis R, Berger GS, Depp R. The Northwestern University mullihospital twin study. I. A description of 588 twin pregnancies and associated pregnancy loss, 1971 to 1975. Am J Obstet Gynecol. 1980;138(7 Pt 1):781-9.
 14. Casper FW, Seufert RJ, Brockerhoff P. Risk weighing in twin pregnancy. Asia Oceania J Obstet Gynaecol. 1994;20:199-202.
 15. Naeye RL, Tafari N, Judge D, Marboe CC. Twins: Causes of perinatal death in 12 United States cities and one African city. Am J Obstet Gynecol. 1978;131:267-72.
 16. Jessa EO. Twin pregnancy and perinatal deaths. J Obstet Gynaecol. 1991;18:336-9.
 17. Pons JC, Soares F, Duyme M, Pourade A, Vial M, Papiernik E et al. Prevention of prematurity in 842 consecutive twin pregnancies J Gynecol Obstet Biol Reprod (Paris). 1998 27:319-28.
 18. Kumar S. Multiple pregnancy. In: Lusely DM, Baker PN, editors. Obstetrics & gynecology. London: Arnold. 2004;229-33.
 19. Hawrylyshyn PA, Barkin M, Bernsteih A, Papsin FR. Twin pregnancies- a continuing perinatal challenge. Obstet Gynecol. 1982;59:463-6.
 20. el-Jallad MF, Abu-Heija AT, Ziadeh S, Obeidat A. Is the second-bom twin at high risk? Clin Exp Obstet Gynecol. 1997;24:226-7.
 21. Gracia PM, Gall SA. Multiple pregnancy. In: Danforth, DN, Scott JR, editors. Danforth's obstetrics and Gynaecology. Philadelphia: Lippincott Williams and Wilkins. 1990;381-99.
 22. Ziadeh S. Outcome of twin pregnancies in North Jordan. J Obstet Gynaecol. 2000;20:492-4.
 23. Algwiser A, Al Sultan S, Mesleh RA, Ayoub H. Twin pregnancies: Incidence and outcome-Riyadh Armed Forces Hospital experience. J Obstet Gynaecol. 1999 ;19:587-93.
 24. Usha Kiran TS, Jayawickrama NS. Who is responsible for the rising caesarean section rate. J Obstet Gynaecol. 2002;22:363-5.
 25. Samra JS, Spillane H, Mukoyoko J, Tang L, Obhrai MS. Caesarean section for the birth of the second twin. Br J Obstet Gynaecol. 1990;97:234-6.

© 2021 Pathan et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
 The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/66846>