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Original Article

Infants of Diabetic Mothers: Prevalence, Complications and Outcome in a Neonatal Unit in Southern Nigeria

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Abstract

Introduction: Diabetes mellitus (DM), the most common endocrine disorder in pregnant women, is a known cause of perinatal morbidity and mortality.

Purpose: In view of the still high morbidity and mortality associated with diabetes, this study was done to ascertain the prevalence, complications, and outcomes of these babies.

Methods: A prospective cross-sectional study was carried out over 2 years in the neonatal unit of the Rivers State University Teaching Hospital, Nigeria.

Results: Of 643 infants admitted, 67 were infants of diabetic mothers (IDMs) giving a prevalence rate of 10.4%. Males predominated 37 (55.2%). Most presented in the 1st 2 h of life 43 (64.2%), had a mean birth weight of 3.41 ± 0.69 g, and were delivered at a mean gestational age of 37.72 ± 2.02 weeks. Most mothers had gestational DM 59 (88.1%) with diagnosis made mainly in the 2nd trimester 38 (76.0%). The most common complication in these infants was hypoglycemia (52.5%) followed by probable neonatal sepsis (50.8%), and hyperbilirubinemia (44.1%). There were no deaths. Complications occurred more frequently in infants whose mothers had fair/poorly controlled blood sugar levels during pregnancy, although not statistically significant. Random blood sugar level was significantly lower in infants whose mothers had fair/poorly controlled blood sugar.

Conclusion: The prevalence of IDMs was 10.4% with zero mortality. The most common complications were hypoglycemia, probable sepsis, and hyperbilirubinemia. Early diagnosis of diabetes in pregnancy, prompt commencement of appropriate treatment, and public awareness campaigns would lead to maternal good glycemic control thereby reduce perinatal/neonatal complications and mortality.

Key words: Complications, Diabetic mothers, Infants, Nigeria, Outcome, Prevalence

INTRODUCTION

Diabetes mellitus (DM) in pregnant women, which can either be gestational or pre-gestational, is a known cause of perinatal morbidity and mortality.[1] The incidence of impaired glucose tolerance in pregnancy has been reported to be between 1.7% and 10%, with gestational diabetes accounting for between 61% and 88%.[1-5] DM is the most common endocrine disorder in pregnancy.[6,7] It is associated with increased transport of glucose from mother to fetus, resulting in fetal hyperglycemia, consequent stimulation of the pancreatic islet cells, and thus fetal hyperinsulinemia.[7,8] Infants of diabetic mothers (IDMs) are thus at risk of various complications which include hypoglycemia, hypocalcemia, hypomagnesemia, respiratory distress syndrome, macrosomia, birth injuries, birth asphyxia, prematurity, neonatal jaundice, polycythemia, growth restrictions, stillbirth, and congenital malformations.[1-8] The most common congenital anomalies in IDMs include central nervous system anomalies mainly neural tube defects and cardiovascular defects such as transposition of great vessels, ventricular septal defects,

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atrial septal defects, left heart hypoplasia and coarctation of the aorta.[9]

The presence of DM before pregnancy (pre-gestational DM) carries a greater risk of complications in the neonate.[10] This may be due to the presence of vascular changes as seen in type 1 and 2 DM for a longer period than with gestational DM.[10] Studies have shown that proper glycemic control (HbA1c <6.5%) in the pre-gestational period and in the first trimester of pregnancy reduces the incidence of complications in the newborn significantly (including congenital malformations).[1,6,7-10] Some countries such as Poland, have reported significant reductions in perinatal morbidity and mortality in IDMs largely due to advancement in neonatal, obstetrics and diabetology care, early diagnosis of gestational diabetes mellitus (GDM) and improved pre-conceptual care for women with diabetes and the provision of insulin pumps as support for pregnant women.[10,11] This, however, is not the case in many countries (including those in sub-saharan Africa) where perinatal mortality remains high.

In view of the still high perinatal morbidity and mortality associated with this condition in this part of the world, this study was carried out as a sequel to a previous prevalence study carried out in the present center over 5 years ago, to ascertain the present prevalence, complications, and outcome of IDMs in the neonatal unit of the Rivers State University Teaching Hospital (RSUTH), Nigeria. The findings from this study will help to assess the impact of recent policies and help develop recommendations that would further improve the outcome of IDMs.

MATERIALS AND METHODS

The study was a prospective cross-sectional study carried out over 2 years in the neonatal unit of the RSUTH, Port Harcourt, Nigeria, from 1st November, 2022 to 31st October, 2024.

RSUTH is a 375 bedded State Government-owned tertiary hospital that serves as a referral center for all the state-owned primary healthcare facilities, general hospitals as well as private hospitals in Rivers State. The hospital has a full complement of specialty care including Pediatrics. The special care baby unit (SCBU) consists of an in-born and out-born section, equipment, such as incubators, resuscitaires/warmers, phototherapy units, and CPAP machines. The unit is run by 3 consultant pediatricians, resident doctors, house officers, nurses, and support staff. Neonates are admitted from the labor ward, labor ward theatre, post-natal wards, children's emergency room, and clinics.

All IDMs admitted into the neonatal unit were consecutively enrolled in the study.

The inclusion criteria for the study included all IDMs whose parent(s)/caregivers gave consent to participate in the study whereas all infants of non-diabetic mothers and IDMs whose parent(s)/caregivers did not give consent were excluded.

A convenient sampling method was employed.

Ethical clearance was obtained from the Rivers State Health Research Ethics Committee before the commencement of this study.

Pre-tested pro formas were administered by the researchers and research assistants a house officers recruited for the study and trained before commencement of the study). Infants with birth weights ≥4 kg were classified as macrosomia irrespective of their gestational age (GA). Random blood sugar (RBS) was done using an Accu-Chek Active Glucometer device (SN 95905017007). Hypoglycemia was defined as RBS <3.0 mmoL/L while hyperglycemia was RBS >8 mmoL/l.[1,12] Complete blood count and serum bilirubin were done for all recruited babies while serum electrolytes, serum calcium, and radiologic investigations were done as required. Hypocalcemia was defined as total serum calcium <1.5 mmoL/L.[1] Probable neonatal sepsis (NNS) was defined using a total white blood cell count of $>20 \times 10^9$/L or $<5 \times 10^9$/L or a neutrophil count of >75% or <40%.[13] Hyperbilirubinemia was defined as serum indirect bilirubin >204 umoL/L or any jaundice requiring treatment with phototherapy.[1] A head-to-toe examination was carried out for every baby admitted, diagnosis was made either clinically ± investigation results and treatment given according to the unit's standard protocols.

Data were entered into a Microsoft Excel spreadsheet and analyzed using Statistical Packages for the Social Sciences version 23. Results were presented in frequency tables, percentages, bars, and pie charts. The statistical level of significance was set at a $P = 0.05$ or less.

RESULTS

Of 643 infants admitted, 67 were IDMs giving a prevalence rate of 10.4%. Males predominated, 37 (55.2%) with M: F ratio of 1.2:1. Most IDMs presented in the 1st 2 h of life 43 (64.2%), had a birth weight of 2500–3999 g 49 (73.1%) with a mean birth weight of 3.41 ± 0.69 g. Most were delivered at GA of 37–42 weeks 50 (74.6%), had a mean GA of 37.72 ± 2.02 weeks through elective cesarean section

(CS) 30 (44.8%). The most common indications for CS were previous CS 24 (44.8%), poorly controlled blood sugar levels 20 (43.4%), pregnancy-induced hypertension/pre-eclampsia 10 (25.5%), and fetal distress 4 (14.8%) while the least was uterine fibroid coexisting with index pregnancy 1 (3.7%) and cephalopelvic disproportion 1 (3.7%), Table 1.

Most mothers were aged ≥32 years 47 (70.1%), had a tertiary level of education 44 (65.7%), and were involved in business 42 (62.7%). The majority of the mothers were of parity 0–1, 38 (56.7%), and lived in urban areas 40 (59.7%). Most mothers had GDM 59 (88.1%) and diagnosis was made mainly in the 2nd trimester of pregnancy 38 (76.0%). Most mothers were placed on dietary restrictions 59 (88.1%), were compliant to treatment 54 (80.6%), and had good blood sugar control 47 (70.1%). History of previous fetal and early neonatal death was obtained in 6 (10.4%) mothers, Table 2.

The most common complications seen in mothers with DM was hypertension in pregnancy 14 (66.7%) followed by pre-eclampsia 3 (14.3%), Figure 1.

The most common complication seen in IDMs was hypoglycemia 31 (52.5%) followed by probable NNS 30 (50.8%), and hyperbilirubinemia 26 (44.1%) whereas the least were respiratory distress syndrome, hypocalcemia and congenital abnormalities and anemia, which consisted of 2 (3.3%) each, Figure 2.

Out of 67 cases of IDMs, 54 (84.4%) were discharged home with no death. The majority stayed 8–14 days on admission, 29 (52.7%). The mean duration of hospital stay for discharged IDMs was 8.60 ± 4.71 days while the mean duration of cases discharged against medical advice was 6.60 ± 4.60 days, Table 3.

Table 1: Characteristics of the study population

Variables	Frequency, *n*=67	%
Sex		
Male	37	55.2
Female	30	44.8
Age at presentation (h)		
1–2	43	64.2
≥3	24	35.8
Birth weight (g)		
<2500	4	6.0
2500–3999	49	73.1
≥4000	14	20.9
Gestational age (weeks)		
<37	17	25.4
37–42	50	74.6
>42	0	0
Mode of delivery		
Vaginal delivery	9	13.4
Elective cesarean section	30	44.8
Emergency cesarean section	28	41.8

There was no significant association between the types of DM and the complications of IDMs ($P > 0.05$), Table 4.

Dietary restriction and insulin/oral hypoglycemic treatments were significantly associated with good blood sugar control ($P = 0.046$ and 0.029), respectively, Table 5.

There was no significant association between the complications in IDMs and the blood sugar control, Table 6.

The mean RBS level was significantly lower in IDMs with fair/poorly controlled blood sugar ($P = 0.007$), Table 7.

DISCUSSION

The prevalence of IDMs in the present study was 10.4%. This was comparable with the 9.5% and 12.1% documented

Table 2: Maternal sociodemographic characteristics

Variables	Frequency, *n*=67	%
Mother's age (years)		
22–31	20	29.9
≥32	47	70.1
Mother's level of education		
Secondary	23	34.3
Tertiary	44	65.7
Mother's occupation		
Civil/public servant	11	16.4
Business	42	62.7
Artisan	3	4.5
Housewife/unemployed	11	16.4
Parity		
0–1	38	56.7
≥2	29	43.3
Area of residence		
Urban	40	59.7
Suburban	27	40.3
Type of diabetes in pregnancy		
Pre-gestational DM	8	11.9
Gestational DM	59	88.1
Time of GDM diagnosis		
1st Trimester	0	0
2nd Trimester	38	76.0
3rd Trimester	12	24.0
Type of treatment given dietary restriction		
Yes	59	88.1
No	8	11.9
Insulin/oral hypoglycemics		
Yes	50	74.6
No	17	25.4
Compliant to treatment		
Yes	54	80.6
No	13	19.4
Blood sugar control		
Good	47	70.1
Fair/poor	20	29.9
Past history of fetal/early neonatal death		
Yes	7	10.4
No	60	89.6

DM: Diabetes mellitus; GDM: Gestational diabetes mellitus

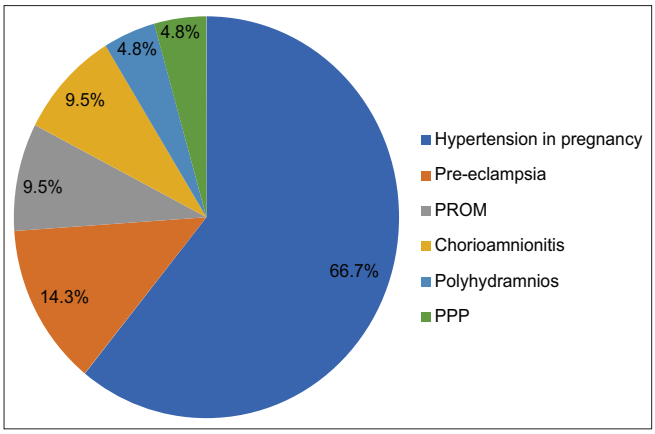

Figure 1: Maternal pregnancy complications. PROM: Prolonged rupture of membranes, PPP: Peripartum pyrexia

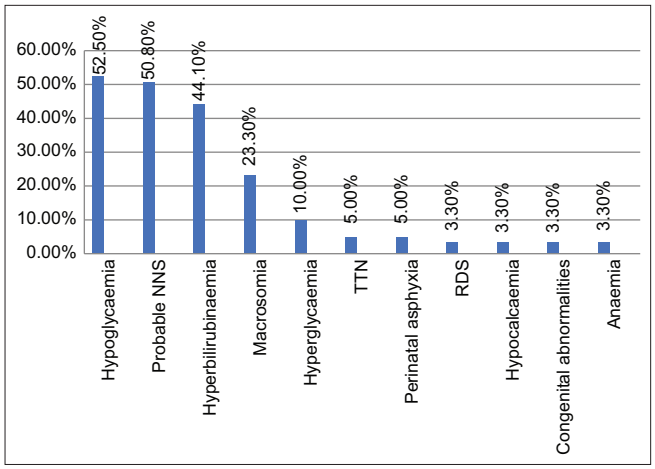

Figure 2: Complications of infants of diabetic mothers. NNS: Neonatal sepsis, TTN: Transient tachypnea of the newborn, RDS: Respiratory distress syndrome

Table 3: Outcome of infants of diabetic mothers and duration of hospital stay

Variables	Frequency, *n*=67	%
Outcome		
Discharged	54	84.4
DAMA	10	15.6
Died	0	0
Duration of hospital stay (days)		
1–7	22	40.0
8–14	29	52.7
>14	4	7.3

DAMA: Discharged against medical advice

Table 4: Association between the types of diabetes in pregnancy and complications of IDMs

Variables	Pre-GDM N (%)	GDM N (%)	Fisher's exact *P*-value
Probable NNS	4 (50.0)	26 (44.1)	1.000
Hyper bilirubinemia	4 (50.0)	22 (37.3)	0.701
RDS	0	2 (3.4)	1.000
Hypoglycemia	3 (37.5)	28 (47.5)	0.716
Hyperglycemia	0	6 (10.2)	1.000
Hypocalcemia	0	2 (3.4)	1.000
Congenital abnormalities	0	2 (3.4)	1.000
Anemia	0	2 (3.4)	1.000
TTN	0	3 (5.1)	1.000
Perinatal asphyxia	1 (12.5)	2 (3.4)	0.321
Macrosomia	1 (12.5)	13 (22.0)	1.000

Pre-GDM: Pre-gestational diabetes mellitus, GDM: Gestational diabetes mellitus, NNS: Neonatal sepsis, RDS: Respiratory distress syndrome, TTN: Transient tachypneoa of the new born

Table 5: Association between blood sugar control and some neonatal and maternal factors

Variables	Blood sugar Good, *n* (%)	Control Fair/ poor, *n* (%)	Fisher's exact *P*-value
Birth weight (g)			
<2500	3 (6.4)	1 (5.0)	
2500–3999	35 (74.5)	14 (70.0)	0.891
≥4000	9 (19.1)	5 (25.0)	
Duration of stay (days)			
1–7	17 (48.6)	5 (25.0)	
8–14	16 (45.7)	13 (65.0)	0.196
>14	2 (5.7)	2 (10.0)	
Mode of delivery			
Vaginal	6 (12.8)	3 (15.0)	
Elective CS	20 (42.6)	10 (50.0)	0.758
Emergency CS	21 (44.7)	7 (35.0)	
Mother's age (years)			
22–31	15 (31.9)	5 (25.0)	0.772
≥32	32 (68.1)	15 (75.0)	
Mother's level of education			
Secondary	16 (34.0)	7 (35.0)	1.000
Tertiary	31 (66.0)	13 (65.0)	
Mother's occupation			
Civil/public servant	8 (17.0)	3 (15.0)	
Business	28 (59.6)	14 (70.0)	
Artisan	2 (4.3)	1 (5.0)	0.902
Housewife/unemployed	9 (19.1)	2 (10.0)	
Parity			
0–1	26 (55.3)	12 (60.0)	0.792
≥2	21 (44.7)	8 (40.0)	
Type of treatment			
Dietary restriction	44 (93.6)	15 (75.0)	0.046*
Insulin/oral hypoglycemics	39 (83.0)	11 (55.0)	0.029*

CS: Cesarean section, *Signifies statistical significance

in Australia[14] and France[15], respectively, but higher than 16.3% and 24.25% in Qatar.[16,17] This difference could be attributable to variations in geographic locations, variations over time, and antenatal treatment protocols, which vary with maternity units even within the same geographic location.

Males predominated in the present study with M: F ratio of 1.2:1. This male predominance was similarly reported by most other researchers.[1,18-21] This may be explained by the already known male predisposition to diseases due to the protective effect of the extra X chromosome in females which is the site of immunoglobulin production.[22] In contrast, Kheir *et al.*[23] reported female predominance. The reason for this difference could not be ascertained.

Close to ¾ (73.1%) IDMs had a normal birth weight of 2500–3999 g in this study as similarly reported by Muthiah and Pyarejan[7] Radwan *et al*.[20] and Kheir *et al*.[23] in India, Libya, and Sudan, respectively. In contrast, macrosomia (birth weights ≥ 4000 g) was reported as being the most common birth weight in a previous study in Port Harcourt Nigeria,[1] India[21], and Egypt.[24] In the present study, however, macrosomia accounted for 20.9%. Macrosomia is an important complication of IDM as it is an indicator of poor maternal glycemic control, especially during late gestation. It is associated with birth injuries, obesity, and diabetes in later life.[25] Maternal age, family socioeconomic status, and sex variations could also account for the difference in birth weights. In addition, the degree of maternal glucose control as well as GA at delivery could account for this variation.

Most (74.6%) IDMs in the present study were delivered at term (37–42 weeks), which was in consonance with most other studies.[1,18,21,23,26,27] This observation agreed with reports by Bener *et al*.,[16] which showed that term IDMs were significantly more in mothers with GDM ($P = 0.03$). This was however not the case in Pakistan[28] where most (62%) IDMs were delivered preterm (28–32 weeks). In the same vein, Faquib *et al*.,[29] reported most IDMs were delivered at ±37weeks GA. Both studies which were carried out over a decade ago could account for the difference probably due to better management protocols in recent times.

Table 6: Association between blood sugar control and complications of IDMs

Variables	Blood sugar Good, *n* (%)	Control Fair/poor, *n* (%)	Fisher's exact *P*-value
Probable NNS	18 (38.3)	12 (60.0)	0.116
Hyperbilirubinemia	17 (36.2)	9 (45.0)	0.587
RDS	2 (4.3)	0	1.000
Hypoglycemia	10 (40.4)	12 (60.0)	0.184
Hyperglycemia	5 (10.6)	1 (5.0)	0.660
Hypocalcemia	0	2 (10.0)	0.086
Congenital abnormalities	2 (4.3)	0	1.000
Anemia	2 (4.3)	0	1.000
TTN	1 (2.1)	2 (10.0)	0.210
Perinatal asphyxia	1 (2.1)	2 (10.0)	0.210
Macrosomia	9 (19.1)	5 (25.0)	0.744

NNS: Neonatal sepsis, RDS: Respiratory distress syndrome, TTN: Transient tachypnea of the newborn

The mode of delivery of IDMs in the present study was majorly through CS as also documented by other researchers.[1,7,18-21,23,24,27,28,30-32] This observation corroborates findings by Bener *et al*.,[16] who documented CS (both elective and emergency) being significantly performed more in mothers with GDM than non-GDM. In addition, Bayoumi *et al*.,[17] showed that the rate of CS was significantly lower among healthy non-DM women than in women with GDM and pre-gestational DM, ($P < 0.001$). In the present study elective CS predominated as similarly documented in other studies[18,21,23,28] whereas some other studies[1,19] reported emergency CS. This difference could be attributable to varying standard operating procedures. In addition, the latter 2 studies[1,19] were carried out over a decade ago thus, advancement in perinatal care in recent times could be accountable.

Most (70.1%) mothers of affected infants in the present study were ≥32 years old. This was not unexpected as DM has been shown to be more prevalent in older mothers.[16] Esahli *et al*.[19] and Ahmed *et al*.[21] in Libya and India, respectively, documented the mean age of mothers with DM as 34 ± 5.4 years and 33.15 ± 4.17 years, respectively. In addition, Cordero *et al*.[26] in Ohio, USA documented more than 3/4th (77%) of mothers with diabetes were of age group 20–36 years similar to the report by Qadir *et al*.,[28] in Pakistan where 88.0% of mothers with diabetes were aged >25 years. The differences in the age grouping could account for the variations.

More than 3/4th (88.1%) of mothers had GDM with pre-gestational diabetes accounting for 11.9%. It is pertinent to note that GDM predominated in all other studies accounting for 82.8%, 61.7%, 78.8%, 59.6%, 69.3%, 62.0%, 54.9%, and 54.0% reported in Port Harcourt (Nigeria),[1,32] India,[7,21] Libya,[20] Iraq[18] Sri Lanka[30] and Sudan[23], respectively.

Most (88.1%) mothers with diabetes were on dietary restriction whereas 74.6% were on drugs either insulin or oral hypoglycemics. In Tripoli,[19] Libya 71% of mothers were on insulin therapy, 19% on oral hypoglycemics, and 10% on dietary restriction. In Qena[24] Egypt, 56.8% were on insulin therapy and 15.0% on oral hypoglycemics while in a previous study in Port Harcourt[32] 59.0%

Table 7: Association between blood sugar control and results of investigations of IDMs

Investigations	Blood sugar Good, µ±SD	Control Fair/poor, µ±SD	Mean difference	Student's *t*-test *P*-value
RBS (mmoL/L)	3.121.37	2.13±1.24	0.99	2.788 (0.007)
WBC (×10/L)	17.60±9.76	16.94±6.14	0.66	0.281 (0.779)
PCV (%)	48.84±5.30	49.09±6.90	−0.25	−0.159 (0.874)
Neutrophil count (×10/L)	55.54±13.94	58.46±13.22	−2.92	−0.795 (0.429)
Platelet count (×10/L)	149.11±50.52	139.30±65.46	9.81	0.664 (0.509)

RBS: Random blood sugar, WBC: White blood cells, PCV: Packed cell volume

were on dietary restriction and insulin therapy whereas 41% were on only dietary restriction. Similarly, 64.0% were on dietary restriction and insulin therapy while 36% were on only dietary restriction in Pakistan.[28] These variations were not surprising as different centers develop treatment guidelines that suite their peculiar population, culture, and environment. It is noteworthy that more mothers on treatment with dietary restriction and drugs significantly had good glycemic control in the present study.

In this study, the most common complication in IDMs was hypoglycemia (52.5%) followed by probable NNS (50.8%) and hyperbilirubinemia (44.1%). Hypoglycemia being the most common complication was also reported in another study in Port Harcourt,[1] Iraq,[18] India,[21] Ohio, USA[26], and Sri Lanka.[30] It was the 2nd and 3rd most common complication in Libya[19] and Pakistan[28], respectively. Almhanna *et al*.[18] and other researchers[33,34] documented hypoglycemia, being significantly more in IDMs than in non-IDMs. It is important to note that maternal hyperglycemia leads to fetal hyperglycemia which stimulates the pancreas to release excess insulin.[26,35,36] At birth, placental separation causes sudden disruption of glucose supply to the infant without proportional effect on hyperinsulinemia resulting in hypoglycemia.[26,35,36] It is noteworthy that hypoglycemia is a marker of poor glycemic control as shown in this study whereby RBS was significantly lower among infants whose mothers had fair/poor glycemic control ($P = 0.007$). The commencement of early breastfeeding in these infants is therefore recommended to prevent and also treat early onset hypoglycemia as colostrum and breast milk have concentrated amount of glucose.[37] In contrast, macrosomia was documented as the most common complication in India,[7] Sudan[23], and Sri Lanka[30] while respiratory distress was in Libya.[19] Probable NNS was the 2nd most common complication seen in IDMs in this study. Interestingly, GDM is associated with down-regulation of placental inflammatory responses.[38] This affects the expression and activity of the nutrient transporter which leads to reduced cell-mediated immunity and lowers the chemotactic activity of cord blood neutrophils in IDMs.[38] This corroborates findings in Qatar[16] which documented sepsis more in infants whose mothers had GDM. Hyperbilirubinemia was the 3rd most common complication in this study, which agreed with the finding in Iraq[18] but the 2nd most common in Port Harcourt,[1] India[21], and Pakistan.[28] This corroborates a report in Qatar[16] where hyperbilirubinemia was significantly more in infants of GDM mothers than those without, ($P < 0.001$). Respiratory distress syndrome, hypocalcemia, and congenital malformations were the least observed in IDMs accounting for 3.3% each in the present study. This was contrary to the studies in India[7] and Ohio,[26] USA where hypocalcemia was the 3rd most common complication. It is worthy of note that birth injuries and polycythemia were not observed in the present study as also documented in Ohio,[26] USA. The low percentage of congenital abnormalities in the present study could be because of a fairly good glycemic control of 70.1%. It has been observed that poorly controlled glycemic level before or during early pregnancy in women with type 1 DM has a 4–10% chance of having significant birth defects and a 15–20% chance of spontaneous abortions.[39] The absence of birth injuries among IDMs in this study as also observed in Sri Lanka[30] could be due to the low percentage of macrosomia (23.3%) unlike in Sudan[23] where birth injuries of 6% were reported with macrosomia of 58%. In addition, operative intervention was high in the present study which could have also accounted for this finding. Polycythemia which was not documented in the present study was the 2nd most common complication in Ohio,[26] USA and accounted for 2.9–10.5% in Tripoli,[19] Libya, and India.[7,21] These variations could be due to varying geographic locations.

There was zero mortality in the present study. This was close to the 0.8% observed in Ohio,[26] USA. Mortality rates of 2.7%, 4.0%, 4.3%, 5.2% and 9.3% were reported in Egypt,[24] Pakistan,[28] Sudan,[23] Nigeria,[1] India,[21] and Libya[19], respectively. The zero mortality could be due to improved obstetric, fetal surveillance, and perinatal and neonatal care. In the present study center, there is a high index of suspicion of DM thus, all pregnancies are screened at booking and every antenatal visit and treatment commenced promptly. Such women were also co-managed with the medical team. It is noteworthy that more than 3/4th (80.6%) of mothers were compliant with treatment and close to this fraction (70.1%) had good glycemic control in the present study which was in contrast with the report in Sudan[23] where 60% had well-controlled glycemic level with a mortality rate of 4%. Although there was zero mortality rate among IDMs in the present study, there were significant morbidities/complications among these infants.

RBS level was significantly lower in infants whose mothers had fair/poor glucemic control as compared to those with good control in the present study. There was also no significant association between the types of diabetes in pregnancy and the complications of IDMs as similarly reported in another study in Port Harcourt[1] Nigeria, Sri Lanka[30], and India.[7,21] This showed that all types of diabetes in pregnancy could cause complications in infants thus emphasis should be on early diagnosis through screening of all pregnant women at booking and during antenatal care with immediate commencement of treatment/monitoring to ensure maternal good blood glucose control so as to prevent neonatal morbidities and mortality.

CONCLUSION

The prevalence of IDMs in the neonatal unit of RSUTH was 10.4% with zero mortality. The most common complication was hypoglycemia followed by probable NNS and hyperbilirubinemia. Although there was no significant association between the types of DM and complications seen in the infants, blood sugar was significantly lower in the infants whose mothers had poor glycemic control. Thus, early diagnosis through universal screening of all pregnant women at booking with prompt commencement of appropriate treatment would lead to a more successful pregnancy with good glycemic control thereby reduce perinatal/neonatal complications and mortality.

Public awareness campaigns targeted at women of reproductive age on symptoms/signs of DM and the importance of early ANC booking should be advocated for better pregnancy outcomes. Early commencement of breastfeeding/exclusive breastfeeding would prevent and treat hypoglycemia in affected infants.

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