International Journal Dental and Medical Sciences Research
Volume 2, Issue 5, pp: 205-207 www.ijdmsrjournal.com ISSN: 2582-6018

Clinicoinvestigative Profile and Outcome of Infants of Diabetic Mother in Pravara Rural Hospital.

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Date of Submission: 02-11-2020 Date of Acceptance: 16-11-2020

I. INTRODUCTION

Diabetes Mellitus (DM) is a chronic metabolic disorder due to either insulin deficiency (relative or absolute) or due to peripheral tissue resistance to the action of insulin. The prevalence of diabetes is increasing globally and India is no exception. Diabetes in pregnancy is associated with increased risk of fetal, neonatal and lifelong complications in the offsprings.[1] Pre-gestational diabetes is present in 1% to 2% of all pregnancies and 13% to 20% of diabetes in pregnancy. This includes women with type 1 diabetes and type 2 diabetes that have been diagnosed & treated prior to conception. Type 2 pre- gestational diabetes mellitus (PGDM) is now more common than type 1 as obesity prevalence and its associations climb.

Gestational diabetes (GDM) is defined as any carbohydrate intolerance first diagnosed during pregnancy. GDM prevalence has been increasing and GDM currently complicates up to 14% of all pregnancies and amounts for the vast majority of all cases of diabetes in pregnancy.[1]

Women with diabetes in pregnancy (type1, type2 and gestational) are at increased risk of adverse pregnancy outcomes. Adequate glycemic control before and during pregnancy is crucial in improving outcome.[2]

Diabetic mothers have a higher incidence of polyhydramnios, pre-eclampsia, pyelonephritis, preterm labour and chronic hypertension. Their fetal mortality rate is greater than that of the non-diabetic mother, especially after 32 weeks. Most infants born to a diabetic mother are large for gestational age. If diabetes is complicated by vascular disease, infants may be growth restricted. The neonatal mortality rate is 5 times greater than that of non-diabetic mothers.[2]

The incidence of congenital malformation is dependent upon peri-conceptional glucose levels and many cases with unrecognized diabetes enter prenatal care beyond the organogenesis period. Insulin has been the primary mode of therapy for diabetes complicating pregnancy for many decades. Some of the adverse effects of diabetes in pregnancy can be prevented by the preconceptional counseling, careful planning of mode and time of delivery, better glycemic control, early screening for fetal abnormalities and good neonatal care.

Short term neonatal complications such as hypoglycemia,
hypocalcemia,RDS,hypomagnesemia,
hyperbilirubinemia or related mainly to fetal hyperinsulinemia, hypoxia and prematurity. Long term complications include an increased rate of childhood and adolescent obesity, impaired glucose tolerance or diabetes mellitus and subtle neuro-psychological dysfunctions.

II. METHODS

The study was conducted in the Newborn Care Unit attached to Rural Medical College in Loni, Maharashtra over a period of 2 years from September 2018 to August 2020. All infants born to diabetic mothers during the study period were included in the study. Newborn routine screening and clinical examination had been done for every IDM baby.

Inclusion criteria.
All new born infants of diabetic mother admitted in Pravara Rural Hospital, Loni .

Exclusion criteria.
Infants whose mothers having serious medical disorders and other endo crinopathies other than DM .
Gestational diabetes was diagnosed based on Carpenter- Coustan criteria after an oral glucose tolerance test. Mother's antenatal history and other associated obstetric and medical problems were noted.

All the deliveries were attended by the

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pediatrician and the babies evaluated first hand to avoid observer bias. All the babies were shifted to NICU and detailed examination was performed at the time of admission and then daily during the hospital stay and finally at the time of discharge from the hospital.

The weight of each baby was recorded and the gestational age was calculated from the New Ballard Gestational scoring chart. They were grouped as appropriate for gestational age (AGA), large for gestational age (LGA), small for gestational age (SGA) by plotting their weight and gestational age in Fenton's growth chart.

All neonates underwent investigations like complete blood count, X-ray chest, the metabolic profile including blood sugar, serum calcium. Serum bilirubin, ABG analysis & hematocrit were done on a need basis. Blood sugar was done on 0, 1, 2, 3, 6, 12, 24, 36 and 48 hours for the first 48 hours of life by the standard heel prick using glucose reagent strip method.[3]

All the neonates suspected of having congenital heart disease on clinical grounds, chest X-ray and 4 limb pulse oximetry screening underwent Transthoracic Doppler echocardiography.

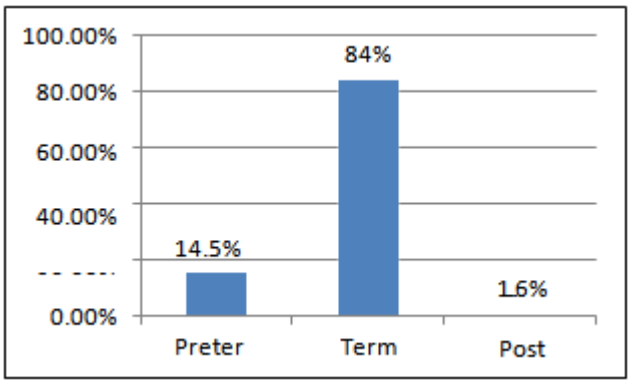
III. RESULTS

During the study period of 2 years between September 2018 to August 2020, there were 62 babies were born to diabetic mothers (Both pre-gestational and gestational diabetes). This accounts for 0.04% of total live births during the period. Among the 62 neonates, 10(16.25%) were born to pre-gestational diabetes and 52(83.75%) were born to gestational diabetic mothers.

Out of 62 babies 9 (14.5%) were born preterm and 52 (84%) babies were term. 1(1.6%) baby was post- dated .

The majority of the babies were born appropriate for gestational age (AGA). 54 (87.5%) were AGA, 5 babies (7.9%) were large for gestational age (LGA) and 3 babies (4.6%) were small for gestational age (SGA) .

Among the congenital anomalies, cardiac anomalies were the most common. 6 babies had congenital heart disease among which ASD and VSD were the most common.



Total 1 baby had renal anomalies among which Hydronephrosis and Dilated Pelvicalyceal system were predominant, 1 babies had Dysmorphic facies with limb anomalies, 1 among the 62 IDM neonates delivered was died.Hypoglycemia occurred in 6 babies (9%) of all IDM babies 4 babies had asymptomatic hypoglycemia and were managed with oral feeds and maintenance fluid. 2 babies had symptomatic hypoglycemia that required Glucose infusion.

Hypocalcaemia was observed in 4.1% (3 out of 62) babies. Polycythemia was seen in 7 babies (10.96%). Hyperbilirubinemia was the most common problem encountered in IDM Babies in our institution. 18 babies had elevated serum bilirubin levels that required phototherapy.

IV. DISCUSSION

India is a developing nation with the largest number of diabetic patients in the world. The WHO has projected that prevalence is increasing in epidemic especially in developing nations.

The present study was conducted in a tertiary care hospital, Newborn Intensive Care Unit in Loni,Maharashtra. During the study period of 2 years there were 15,236 live births in the hospital at an average of 635 deliveries per month and 21 deliveries per day.

Cloherty et al in Newborn care manual have given pre-gestational diabetes contributes to 1-2% of all pregnancies and 13-21% of diabetes complicating pregnancy.[1] In our study pre-

gestational diabetes contributed to 16.25% of all diabetes complicating pregnancy and 1.47% of all pregnancies.

Cloherty et al in Newborn care manual has given that GDM complicates 6-8% of all pregnancies.[1] In our study the prevalence of GDM was 7.6%. Elango et al in his study have given the prevalence of total diabetes during pregnancy at 1.24%.[4] That majority of the infants of diabetic mother babies were born term 83.75% in our study with preterm babies contributing to 16.25%.

Elango et al in their study had shown a term 81.3% and preterm 17.3% babies.[4] SY Ingale et al have observed that 76% were born of the term.[5]

In our study, based on birth weight and gestational age, 87.5% were appropriate for gestational age (AGA). 7.9% were large for gestational age (LGA) and 4.6% were small for gestational age (SGA). SY Ingale et al in their study have observed macrosomia in 14% of their babies.[5] Wasim Rafiq et al had 2% of babies as SGS.[6]

Hypoglycemia as a complication in the immediate newborn period was observed in 9% of babies, among which 68.6% were asymptomatic and 31.4% were symptomatic. The incidence of hypoglycemia was less when compared to other studies. This may be due to most of our patients were urban educated antenatal mothers with better control of their diabetic status during their 3rd trimester.

Statistically 29% of babies developed hyperbilirubinemia as a complication during the first week of life. This was comparable to the results of Yashowanth Rao et al study at their 45% hyperbilirubinemia and Uchendu O. Uchendu et al study of 40.7% hyperbilirubinemia.[7,8]

Congenital heart disease was the most common congenital anomaly noted in the study, among which ASD and VSD were the most common. The incidence of heart disease was less when compared with other studies, maybe due to only symptomatic babies, infants who presented with the murmur and abnormal four limb saturation by pulse oximetry were subjected to echocardiogram in our study. Only 1 baby out of 62 IDM neonates died. Overall mortality was compatible with other studies.[9,10]

V. CONCLUSION

The incidence of gestational diabetes and pre-gestational diabetes complicating pregnancy is on the rise. Screening of all pregnant mothers and early detection of their metabolic complications of pregnancy helps in reducing the incidence of congenital anomalies. Optimal control of the glucose level in the antenatal period and careful monitoring and feeding in the immediate postnatal period of the babies helps in reducing the immediate postnatal metabolic complications of these neonates.

REFERENCES

[1]. Echenwald ER. Cloherty & Starks Manual of Neonatal Care 8th Edition. 2017;911.
[2]. Kleigman RM, Stanton B, Geme J, Schor NF. Nelson Text Book Of Pediatrics. 20th Edition. 2016 Chapter-107.
[3]. American Academy Of Pediatrics Committee Of Fetus & New Born, Post Natal Glucose Homeostasis In Late Preterm & Term Infants. Pediatr. 2011;127:575-9.
[4]. Elango S, Sankarasubramanian ML, Marimuthu B. An observational study of clinical profile of infants born to pregestational and gestational diabetic mothers. Inter J Contemporary Pediatr. 2018 Mar;5(2):557.
[5]. Ingale SY, Kakar R, Karguppikar M. Inter J Med Health Research. 2017;3(11:74-7.
[6]. Rafiq W, Hussain SQ, Jan M, Najar BA. Clinical and metabolic profile of neonates of diabetic mothers. Int J Contemp Pediatr. 2015 Apr;2(2):114- 8.
[7]. Rao AY, Rao BK. J Dental Medical Sciences (IOSR-JDMS. 2017:16(11):74-87.
[8]. Uchendu UO, Leblanc P, Thomas JM, Maher OM, Morales Y, Fineza B. Clinical Profile and Outcome among Infants of Diabetic Mothers Delivered At the Brooklyn Hospital Center. Inter J Child Health Nutr. 2014 Mar 10;3(1):27-40.
[9]. Suraiya B, Kumar DS. J Neoantal-Perinatal Medicine. 2017:403-8.
[10]. Infant of diabetic mother. Textbook of Neonatology. Edited by NRC Roberton. 2nd Ed, 2000:333-337.