

Effect of Age, Gravida History and Average Glucose Level on Birth Weight of Infant

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Abstract:

Background : Gestational Diabetes Mellitus(GDM) is becoming one of the major life style disease. It occurs due to insufficient insulin release by the pancreas for coping the pregnancy situation. The major causes are lack of exercise, faulty eating habits stress and tension .GDM affect adverse prenatal outcomes ,risk of obesity and glucose intolerance in infants. Hypertension and many othe complication are related with GDM. Diagnosing the causes will helpful in treatment. In this way this study designed to know the effect of age gravid history and amount of blood sugar level on birth outcomes.

Materials and Methods: The study was conducted on the pregnant women who are detected Gestational Diabetes Mellitus(GDM) and visiting in Bansal hospital Meenakshi nursing home and Malti hospital arera colony ,Shahpura ,Bhopal Madhya Pradesh from December 2018 to December 2019 . Total 50 respondents aged between 20-40 year were selected for study..

Results: Overall 4% LBW , 26% normal weight and 70% overweight births were recorded. . Maximum over weight was recorded in secondary gravida i.e.81.81% . It was found that maximum percent of overweight infants 80% were recorded in mothers whose average blood sugar fall in catagory 121-140 gm % followed by 76.47% in 141-160 gm% category. The effect of average blood glucose level was not found significant with birth weight.

Key Words: gravid history, GDM, Hyper tension, Gestational Diabetes

Date of Submission: 13-07-2020

Date of Acceptance: 28-07-2020

I. Introduction

The term gestational diabetes refers to the type of diabetes that detected in pregnant women without a medical history of diabetes. The cases of Gestational diabetes are now rising. A women having gestational diabetes is more prone to pregnancy complications. During pregnancy body makes more hormones to cultivate pregnancy. In this way the body gains weight, yield more energy etc. Metabolism is increased during pregnancy and there is an increased demand of insulin also for penetrating the glucose into the cell and used for giving energy. In this way some women develops insulin resistance. This insulin resistance increases the body's demand of insulin. Without fulfilling the demand the blood sugar level rises or hyperglycemia occurs. This creates many complications. There is increased risk of delivering large babies, premature delivery, still birth etc.

About 62 million people in India detected with type 2 diabetes. The expected number of cases will be 79.4 million by 2025(2011)¹. The prevalence of gestational diabetes has been reported 3.8% in Kashmir², 6.2% in mysur³, 9.5% in western India⁴, 17.9% in Tamilnadu⁵, 35% in Punjab and⁶ 41% in lucknow⁷. It is estimated that about 4 million women are affected by GDM in India, at any given time point⁸ GDM imposes great burden on economy as well as on the society. Hence this study designed to find out the causes of GDM and make effective measures.

II. Materials and Methods

The study was conducted on the pregnant women who are detected Gestational Diabetes Mellitus(GDM) and visiting in Bansal hospital Meenakshi nursing home and Malti hospital arera colony ,Shahpura ,Bhopal Madhya Pradesh from December 2018 to December 2019 . Total 50 respondents were studied.

Study design : Observational study

Study location: Bansal hospital Meenakshi nursing home and Malti hospital arera colony ,Shahpura ,Bhopal Madhya Pradesh

Study duration: December 2018 to December 2019

Sample size: absolute sampling (found 50 respondents)

Inclusion area: pregnant women detected for diabetes mellitus
Pregnant women of 20-40 year age

Primi gravida(first pregnancy)
 Secondary gravida (second pregnancy)
 Multi gravida (more than second time)

Exclusion Area: pregnant after 40 year of age
 Who has history of multiple abortions
 Pregnant women who had other genetic disorder

Procedure: Pregnant women who has given consent were taken for study.Pregnant women who were detected for diabetes mellitus in first trimester were selected. They were observed in every visit. A questionnaire was framed for general and other information like family history working status complications during pregnancy . . Anthropometric measurements and blood glucose haemoglobin level were recorded and were updated in every visit.

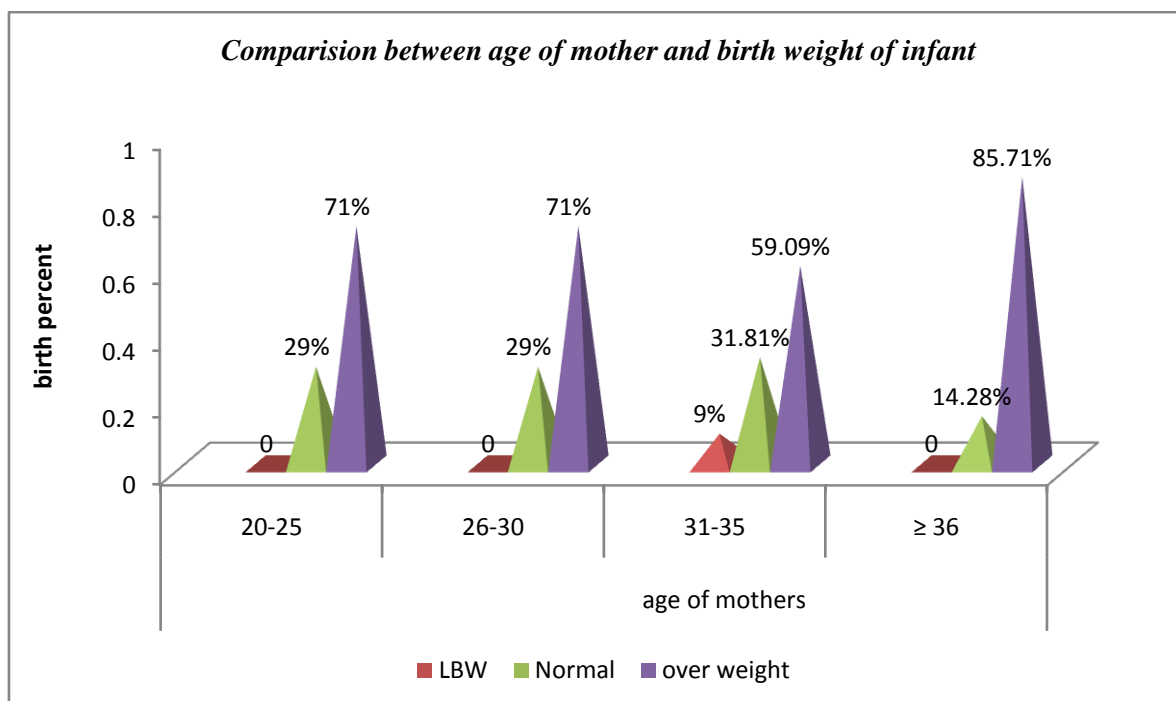
Statistical analysis: Data was analysed by mean and percentage .test of significance was applied

III. Result and Discussions

The pregnant women who were detected Diabetes mellitus studied and result was analyzed as follows.

Table 1: Comparison of age of pregnancy and birth weight of infant of GDM patients

Category of Birth weight of infant	Age of mothers (year)				Total
	20-25	26-30	31-35	≥ 36	
LBW	0	0	2(9%)	0	2(4%)
Normal	2(29%)	2(29%)	7(31.81%)	2(14.28%)	13(26%)
Over weight	5 (71%)	5 (71%)	13(59.09%)	12(85.71%)	35(70%)
Total	7 (100%)	7 (100%)	22(100%)	14(100)	50(100%)

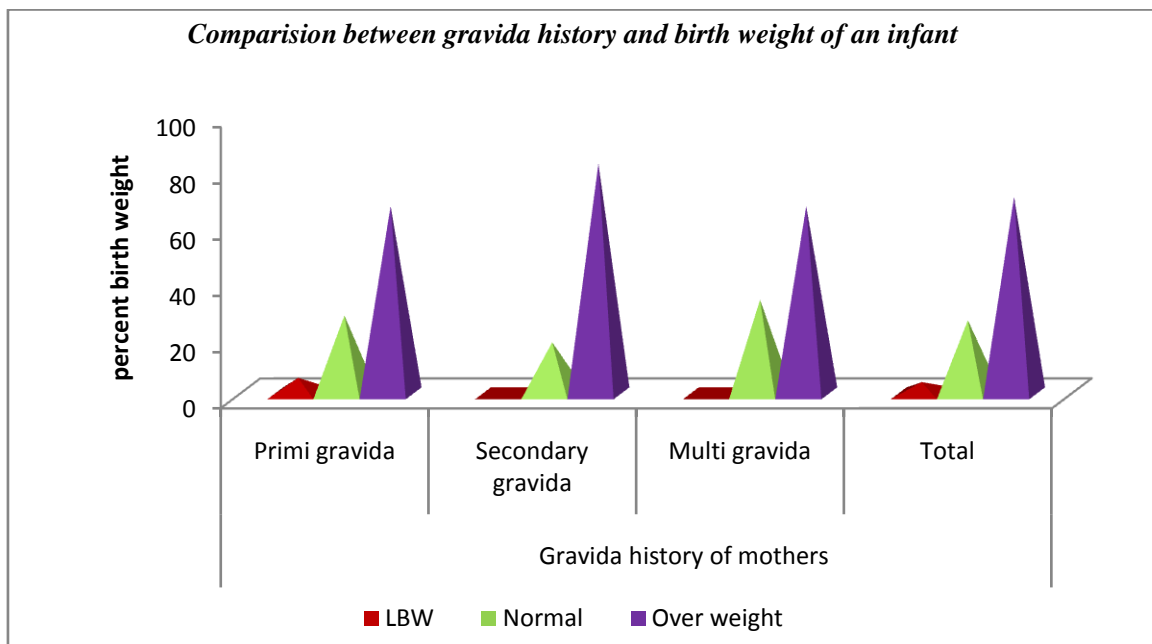


Maximum over weight births were found in ≥36 year age group. 9% LBW recorded only in 31-35 year category. The overall 4% LBW , 26% normal weight and 70%overweight was recorded .Minimum 14.28% normal births were recorded ≥36 year age group.

Table 2: Comparison between gravida history and birth weight of infant

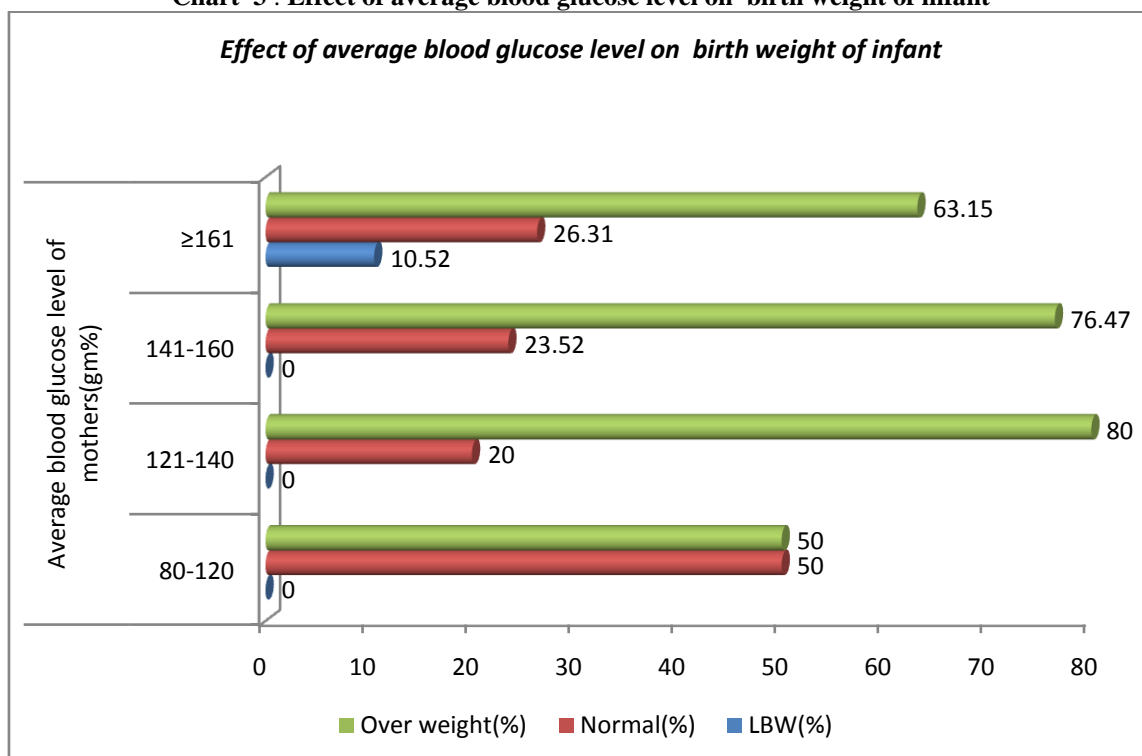
Birth weight category	Gravida history of mothers			Total
	Primi gravida	Secondary gravida	Multi gravida	
LBW	2 (5.5)	0	0	2 (4)
Normal	10 (27.7)	2 (18.18)	1 (33.33)	13 (26)
Over weight	24	9	2	35

	(66.66)	(81.81)	(66.66)	(70)
Total	36 (72%)	11 (22)	3 (6)	50 (100)



Gravida history was compared by birth weight. Maximum over weight was recorded in secondary gravida i.e.81.81%. Only 5.5% LBW was recorded in primi gravida. Maximum percent of normal births were recorded in Multi gravida.

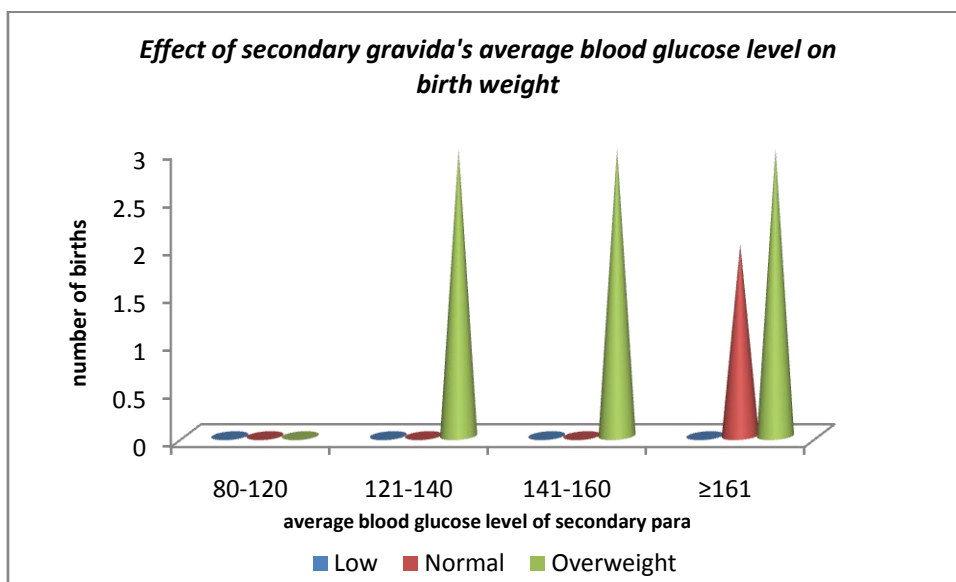
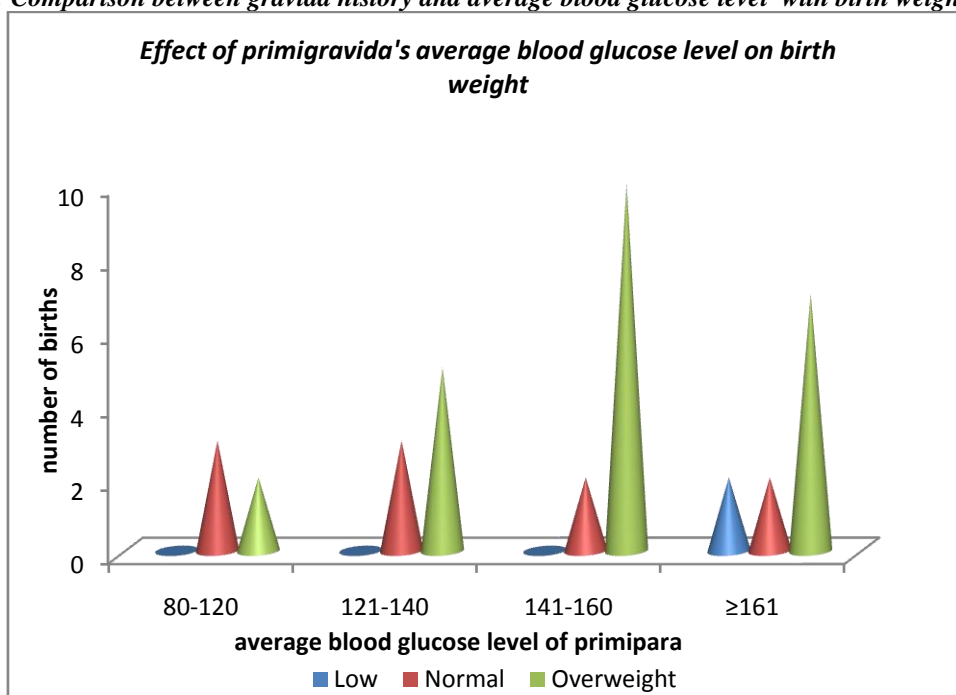
Chart 3 : Effect of average blood glucose level on birth weight of infant

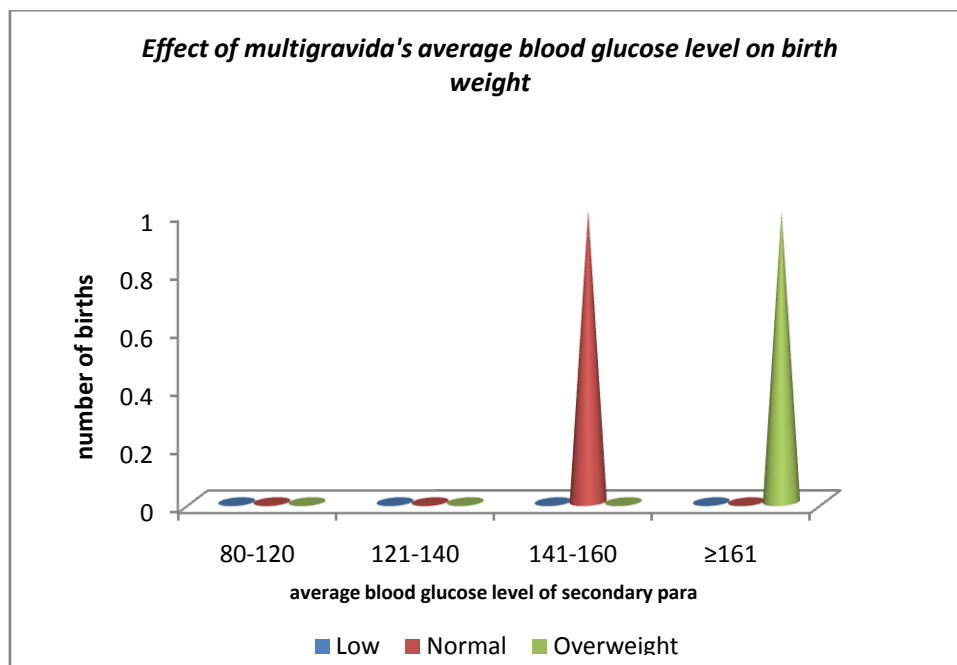


Average blood glucose level was compared with birth weight of an infant. It was found that maximum percent of overweight infants 80% were recorded in mothers whose average blood sugar fall in catagory121-140

gm % followed by 76.47% in 141-160 gm% category.Low birth weight infants were recorded only in greater than 161gm% category.

Chart 4 : Comparison between gravida history and average blood glucose level with birth weight of infant





It is found that normal birth weight was recorded in every category of blood glucose level found in primi gravida .while in secondary and multi gravida normal birth were recorded in greater than 161 gm% and 141-160 gm percent category respectively. The effect of average blood glucose level was not found significant with birth weight.

IV. Conclusion

Total fifty gestational diabetic mothers were recorded in which maximum belonged to primi gravida stage . Maximum over weight births were recorded in every age category. Low births were only recorded in age group 31-35 in primi gravida. Maximum over weight were recorded in GDM patients having average blood glucose leve 141-160 gm % .Low birth weight was recorded only in primi gravida having blood glucose above 161 gm percent. Statistically the effect of average blood glucose level was not found significant with birth weight.

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DR. Renu Verma. “Effect of Age, Gravida History and Average Glucose Level on Birth Weight of Infant.” *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 9(4), 2020, pp. 35-40.