

23. Shimakawa Y, Cameliq O, Ariyoshi K. Outbreak of chickenpox in a refugee camp of northern Thailand. *Conflict and Health*. 2010;4:4.
24. Ent MVD, Gupta SK, Hoekstra E. Two doses of measles vaccine reduce measles deaths. *Indian Pediatr*. 2009;46(17):933–938.
25. *Guidelines for the Surveillance Investigation and Control of Varicella Outbreaks*. Immunization Branch, California Department of Public Health; February 2007:33–36.

Maternal and foetal outcome of gestational diabetes mellitus in a rural block of Assam, India



Tulika Goswami Mahanta^{a,*}, Ajanta Deuri^a,
Bhupendra Narayan Mahanta^b, Prahlad Bordoloi^c, Reeta Rasaily^d,
Jagadish Mahanta^e, Swarnali Baruah^f, Pronab Gogoi^f

^a Department of Community Medicine, Assam Medical College, Dibrugarh, Assam 786001, India

^b Department of Medicine, Assam Medical College, Dibrugarh, Assam 786001, India

^c Private Practitioner, Dibrugarh, Assam 786001, India

^d Scientist E, ICMR, Ansari Nagar, New Delhi 110029, India

^e Scientist G/Director, RMRC (NE), ICMR, Dibrugarh, Assam 786001, India

^f Statistician, MCH Cell, Assam Medical College, Dibrugarh, Assam 786001, India

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ABSTRACT

Aim: India is known as a diabetic capital of the world and it has been well recognized that women especially pregnant and lactating women form one of the most vulnerable segments of the population from nutritional point of view.

Objectives: To assess the incidence of gestational diabetes mellitus and measure the maternal and foetal outcome of gestational diabetes mellitus.

Methods: A cohort study was conducted in an area served by rural block primary health centre, where all consented pregnant women in first trimester registered between June and August 2011 were followed up in second and third trimester to measure incidence of gestational diabetes mellitus along with maternal and foetal outcome measurement during delivery and postnatal period.

Results: The incidence of GDM amongst the study population was 3% (28, $n = 930$). The impaired glucose tolerance was documented amongst 216 (23.2%, $n = 930$) ladies. Prevalence of underweight was 21.4% (202), while 5.7% (54) were overweight and 0.2% (2) was obese in first trimester. Anaemia prevalence was 72% (670) ($Hb < 110$ g/l). Serum albumin level was lower in 32.9%. LSCS rate was found significantly higher amongst GDM subjects compared to non-GDM subjects (RR = 4.58; 95% CI, 2.18–9.59, $p = 0.000$). Mean birth weight of neonate was 2.802 ± 0.479 . Birth weight was found significantly higher amongst GDM group compared to non-GDM group ($\chi^2 = 166.8$, $p = 0.000$). Neonatal death was more common amongst GDM group compared to non-GDM group ($\chi^2 = 6.776$, $p = 0.034$).

Conclusion: There is increased caesarean section rate, admission to an NICU among women who had gestational diabetes mellitus during pregnancy.

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* Corresponding author. House No 16, Ward 19, Satsang Vihar Road, Jyoti Nagar, Dibrugarh, Assam, India. Tel.: +91 9435032539. E-mail addresses: drtulikagoswami@gmail.com (T. Goswami Mahanta), tulika_gm@rediffmail.com (T. Goswami Mahanta)

1. Introduction

While under nutrition continues to be major problem as in the earlier decades, the current decade has witnessed the progressive rise of over nutrition in women during reproductive age especially among the affluent segments of population both in urban and in rural areas. It has become imperative to assess the nutritional status of pregnant women and give them appropriate advice and care. Maternal under nutrition is associated with low birth weight and all its attendant adverse consequences.¹ On the other hand, as the number of diabetic people is increasing worldwide the prevalence of gestational diabetes mellitus is also increasing especially in less prosperous countries.² In India, during the last two decades there is marked increase in incidence of gestational diabetes mellitus i.e. 2% in 1980, 7% in 1990 and 16.55% in 2000.³ Indians have an eleven fold higher risk of developing diabetes mellitus during pregnancy.⁴ This rise is due to sedentary life style, diet changes, continued immigration from high-risk population and a virtual epidemic of childhood and adolescent obesity.⁵ Study conducted by Ingrid Ostlund et al in two countries of Stockholm and Orebro in Sweden from 1997 to 2001 found that impaired glucose tolerance is independently and significantly associated with an increased incidence of caesarean section and prematurity as well as markedly increased proportion of large for date or macrosomia and admission to an NICU for two days or longer.⁶ An increase in pancreatic beta cell mass and insulin secretion in the foetus occurs by the 16th week of gestation, in response to maternal hyperglycemia.^{7,8} Blood sugar testing as a routine test is not practiced in antenatal checkup done in most of the PHCs and sub centres of Assam; though, it was well known that early detection of gestational diabetes and adequate care has potential to avert preventable morbidities. Keeping this background in mind and paucity of published data from north eastern region, prompted us to conduct the study to assess the incidence of gestational diabetes mellitus and measure the maternal and foetal outcome of gestational diabetes mellitus.

2. Methodology

2.1. Design

A cohort study was conducted where a follow-up of all enrolled pregnant ladies was done in each trimester with outcome measurement immediately after delivery and six weeks postpartum.

2.2. Ethical statement

The study protocol was approved by the Institutional Ethics Committee of Assam Medical College, and necessary permissions were obtained in addition from the Joint Director of Health Services.

A written informed consent was sought from all eligible participants, and those consenting were included in the study. If a participant could not read or write, verbal information was provided, and consent was recorded as a thumb impression in the presence of two impartial witnesses. The surveys were

preceded by meetings with community leaders to ensure community-wide participation.

2.3. Setting

A rural block of Dibrugarh District of Assam was selected randomly from six rural blocks; which is situated about 30 km away from Dibrugarh town. It covers a population of 1,73,908. Most of the people residing in this area are agricultural worker.

2.4. Participants

All antenatal women coming during Jun to Aug 2011 to all sub centres, tea garden hospitals, village health and nutrition days celebrated in outreach areas, primary health centres, state dispensaries and community health centres of Khowang block of Assam giving consent were enrolled in the study.

Taking prevalence of gestational diabetes mellitus as 7% with anticipated relative risk of two and allocation of 1:3 with 95% confidence interval and 20% relative precision the required sample size for exposed group is 212 and for control group is 636.³

2.5. Study procedure

Information about socio demographic, behavioural and dietary habit was collected using predesigned, pretested schedule. Food frequency questionnaire and 24 h recall method was used for dietary survey. Physical measurement includes anthropometry and general physical examination. Body mass index (BMI) was calculated. Reproductive tract infection was diagnosed using syndromic approach. Laboratory investigation was done for blood sugar, serum creatinine, serum albumin, serum urea, serum uric acid, urine for sugar, albumin, pus cell, epithelial cell, RBC, calcium oxalate and haemoglobin. Blood sugar testing was done using glucose-oxidase – peroxide method and haemoglobin estimation was done using cyanmethaemoglobin method and haemoglobin level less than 110 g/l is categorized as anaemia.⁹ The term gestational diabetes; is defined as diabetes with onset or first detected during the pregnancy; which includes women with pre-existing (clinically undetected) type 1 or type 2 diabetes and the majority can expect to be restored to normal glucose tolerance immediately after pregnancy.¹⁰ In pregnant ladies 75 g glucose was given without regard to the last meal. A venous blood sample was collected at 2 h for estimating plasma glucose.¹¹ Blood sugar estimation was done in first, second, third trimester, and postnatal so that all GDM cases were detected and post pregnancy status is taken as proxy to know pre pregnancy blood sugar level.

WHO criteria for diagnosis of GDM (with 75 g OGTT) are used as a single test procedure to diagnose gestational diabetes mellitus in the community was used with the following cut off points.

Plasma Glucose	Type of hyperglycemia
2h > 200 mg/dl	Diabetes
2h > 140 mg/dl & <199 mg/dl	Gestational diabetes mellitus
2h > 120 mg/dl & <139 mg/dl	Gestational glucose intolerance
2h < 120 mg/dl	Normal

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