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Glucose Tolerance Testing at 34 Weeks Gestation

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1) Effectiveness of screening for gestational diabetes during the late gestational period among pregnant Turkish women

Author(s): Kurtbas H.; Keskin H.L.; Avsar A.F.

Source: Journal of Obstetrics and Gynaecology Research; Jun 2011; vol. 37 (no. 6); p. 520-526

Publication Date: Jun 2011

Publication Type(s): Journal: Article

Available in full text at Journal of Obstetrics and Gynaecology Research - from John Wiley and Sons

Abstract: Aim: To assess the incidence of gestational diabetes mellitus (GDM) beyond 30 gestational weeks (GW) in pregnant Turkish women and to determine the criteria for repeating the test during the late period of gestation when the results were normal after the initial screen. Materials and Methods: Two hundred pregnant women were enrolled. Maternal age, gravidity, parity and presence of other risk factors (family history of diabetes mellitus, habitual abortions, prior fetal macrosomia, obesity, gestational hypertension history) were collected. First, GDM was evaluated between the 24th and 28th GW by screening (50-g glucose challenge test) and diagnostic tests. This protocol was repeated again at least 1 month from the first screen at the 30th-34th GW in all patients, except those diagnosed with GDM due to an abnormal 3-h test. The results were compared with the clinical risk factors. Results: In total, 19.5% of the cases had positive results in the first screening test. Six patients were diagnosed with GDM. Among the remaining 194 pregnancies, another 10 cases were diagnosed as having GDM with repeated tests, and the incidence of newly diagnosed GDM was 5.2%. Only the mean age (34.2 years) (P = 0.010) and a history of delivering a macrosomic infant (P < 0.010) were significantly high in the lategestation GDM-positive cases. Conclusions: Even when early screening tests are negative, pregnancies with advanced maternal ages and those with a history of delivering a macrosomic infant should be re-evaluated for GDM during the late gestational period with screening and diagnostic tests. © 2010 The Authors.

Database: EMBASE

2) Serial changes in the 50-g oral glucose test in pregnancy: implications for screening.

Author(s): Watson, W J

Source: Obstetrics and gynecology; Jul 1989; vol. 74 (no. 1); p. 40-43

Publication Date: Jul 1989

Publication Type(s): Journal Article

Abstract: To quantitate the effect of advancing pregnancy on the screening test for gestational diabetes, 550 patients were given a 50-g oral glucose screening test at 20, 28, and 34 weeks' gestation. A significant increase in the plasma glucose value was found, with a mean increase of 1.1 +/- 1.9 mg/dL per week from 20-34 weeks' gestation (r = 0.39, P less than .01). Only 34 patients (6.2%) had a positive screening test at 20 weeks' gestation, and it appears that routine screening in a low-risk population at 20 weeks is not warranted. Sixty patients (10.9%) with a negative screening test at 20 weeks had a positive test at 28 weeks. Forty-four patients (8.0%) with a negative test at 28 weeks had a subsequent positive test at 34 weeks. The overall incidence of gestational diabetes in this population was 4.9%. Currently, screening is recommended at 24-28 weeks for all pregnancies that have not been previously identified as having glucose intolerance. Eleven percent of the

gestational diabetics in our population would have been undetected had we screened only at 24-28 weeks. This quantitative information may be helpful in deciding whether rescreening later in pregnancy is indicated.

Database: Medline

3) Screening for gestational diabetes. Optimum timing and criteria for retesting.

Author(s): Jovanovic, L; Peterson, C M

Source: Diabetes; Jun 1985; vol. 34

Publication Date: Jun 1985

Publication Type(s): Journal Article

Available in full text at Diabetes - from Free Access Content

Abstract: Because of the morbidity associated with undiagnosed gestational diabetes (GDM), screening programs are advocated in all pregnancy clinics. The purpose of this study was to elucidate the optimum time to test for diabetes during gestation, the indication for retesting, and the predictive value of a positive screening test for a large (greater than 4000 g) infant. Women (N = 300) were screened at three time points: 9-20 wk, 27-31 wk, and 33-36 wk. An additional group of 300 women were screened at two time points: 27-31 wk and 33-36 wk. The prevalence of GDM in this group was 3.2%. The optimum timing for screening for highest yield was 27-31 wk. Retesting at 33-36 wk appeared cost effective if (1) maternal age was greater than or equal to 33 yr, (2) a positive screen was present at 27-31 wk, and (3) the mother was obese (greater than 120% ideal body wt).

Database: Medline

4) Timing of screening for gestational diabetes mellitus in women with moderate and severe obesity.

Author(s): O'Dwyer, Vicky; Farah, Nadine; Hogan, Jennifer; O'Connor, Norah; Kennelly, Mairead M; Turner, Michael J

Source: Acta obstetricia et gynecologica Scandinavica; Apr 2012; vol. 91 (no. 4); p. 447-451

Publication Date: Apr 2012

Publication Type(s): Clinical Trial Journal Article

Available in full text at Acta Obstetricia Et Gynecologica Scandinavica - from John Wiley and Sons

Abstract: We evaluated screening with a diagnostic oral glucose tolerance test earlier than 20 weeks gestation in women with moderate to severe obesity. Prospective observational study. Large university teaching hospital. We enrolled 100 women booking for antenatal care in the first trimester at their convenience. Height and weight were measured and body mass index calculated. Only women with a body mass index > 34.9 kg/m(2) were included. Women were booked for a 100 g oral glucose tolerance test before 20 weeks and, if normal, another test at 28 weeks gestation. Impaired glucose tolerance and gestational diabetes mellitus. Of the 100 women given an appointment for an oral glucose tolerance test before 20 weeks gestation, 92 attended. Of these, 10 (10.8%) women had an abnormal result, with impaired glucose tolerance in five (5.4%) cases and gestational diabetes mellitus in five (5.4%) cases. Of those with a normal result at 20 weeks, 81 attended for a repeat test at 28 weeks gestation. A further four (4.9%) had impaired glucose tolerance and four (4.9%) had gestational diabetes mellitus. A total of 18 (20.5%) of the 88 women who complied with screening had an abnormal test. Women who have moderate/severe obesity have a one in five chance of having an abnormal diagnostic oral glucose tolerance test when screened for gestational diabetes mellitus. To optimize maternal glycemic control in pregnancy, we

suggest that women with a body mass index > 34.9 kg/m(2) may need to be screened early in pregnancy and, if the test is normal, again at 28 weeks gestation. © 2012 The Authors Acta Obstetricia et Gynecologica Scandinavica© 2012 Nordic Federation of Societies of Obstetrics and Gynecology.

Database: Medline

5) Gestational diabetes mellitus (GDM) screening in morbidly obese pregnant women.

Author(s): Gandhi, Preeti; Farrell, Tom

Source: European journal of obstetrics, gynecology, and reproductive biology; Dec 2011; vol. 159 (no. 2); p. 329-332

Publication Date: Dec 2011

Publication Type(s): Journal Article Evaluation Studies

Abstract: To study the outcomes of two-stage GDM screening of morbidly obese women in our obstetric unit and to evaluate the diagnostic performance of 20-week oral glucose tolerance test (OGTT) values in predicting or excluding late onset GDM. A retrospective study in which 190 pregnant women with BMI ≥40 had two-stage screening: a 75g OGTT is performed at 20 weeks and repeated at 28 weeks if the 20-week OGTT was normal. Receiver operating characteristic (ROC) curves for 20-week OGTT values were constructed in order to obtain an optimal cut-off value of fasting and/or 2-h glucose at 20 weeks from which GDM could be predicted or excluded at 28 weeks. Sensitivity, specificity, positive likelihood ratio, and negative likelihood ratio were determined for each of the fasting and 2-h post-load glucose values at 20 weeks. Forty six (24%) women were diagnosed with GDM. Thirty-two (70%) were diagnosed at 20 weeks and 14 (30%) at 28 weeks. The 2-h cut-off value of ≥6mmol/l at the 20-week OGTT had a negative likelihood ratio of 0.12 to predict GDM at 28 weeks. The low negative likelihood ratio reduces the probability of detecting GDM at 28 weeks from 9% (pre-test probability) to 1% (post-test probability). Nearly 70% of the women were diagnosed with GDM at 20 weeks, which gives an early opportunity to treat maternal hyperglycaemia with consequent health benefits. A 2-h cut-off glucose value of 6mmol/l at 20 weeks OGTT has a low negative likelihood ratio which virtually excludes GDM at 28 weeks. Hence women with a 2h value of <6mmol/l at 20 weeks can avoid a repeat 28 week OGTT test.

Database: Medline

6) Timing of screening for gestational diabetes mellitus in women with moderate and severe obesity

Author(s): O'Dwyer V.; Farah N.; Hogan J.L.; O'Connor N.; Kennelly M.M.; Turner M.J.

Source: Archives of Disease in Childhood: Fetal and Neonatal Edition; Apr 2012; vol. 97

Publication Date: Apr 2012

Publication Type(s): Journal: Conference Abstract

Available in full text at Fetal and Neonatal - from Highwire Press

Abstract: Introduction Moderate and severe obesity is associated with a high risk of developing gestational diabetes mellitus (GDM). We evaluated screening with a diagnostic oral glucose tolerance test (OGTT) earlier than 28 weeks gestation in women with a Body Mass Index (BMI) >34.9kg/m2. Methods Women were recruited in the first trimester. Height and weight were measured. Women were booked for a 100g OGTT before 20 weeks, and, if normal, another test at 28 weeks gestation. A postpartum GTT was offered to women with an abnormal test during

pregnancy. Clinical and sociodemographic details were collected prospectively. Results Of the 100 booked for a OGTT before 20 weeks gestation, 92 attended. Of these, 10 women (10.8%) had an abnormal result before 20 weeks with impaired glucose tolerance in 5 cases (5.4%) and GDM in 5 cases (5.4%). Of those with a normal GTT at 20 weeks, 81 attended for a GTT at 28 weeks gestation. A further 4 (4.9%) had impaired glucose tolerance and 4 (4.9%) had GDM. A total of 18 (20.5%) out of the 88 who complied with the screening had an abnormal OGTT. Conclusion One in five of women screened, who had moderate/severe obesity, had an abnormal OGTT. Earlier screening during pregnancy facilitates earlier interventions to improve carbohydrate balance, which may improve clinical outcomes. However, unless it is repeated at 28 weeks, the diagnosis of GDM may be missed. We suggest that women with a BMI >34.9 kg/m2 should be screened early in pregnancy and, if the test is normal, again at 28 weeks gestation.

Database: EMBASE

7) Screening in high-risk group of gestational diabetes mellitus with its maternal and fetal outcomes.

Author(s): Nilofer, Angadi Rajasab; Raju, V S; Dakshayini, B R; Zaki, Syed Ahmed

Source: Indian journal of endocrinology and metabolism; Mar 2012; vol. 16

Publication Date: Mar 2012

Publication Type(s): Journal Article

Available in full text at Indian Journal of Endocrinology and Metabolism - from National Library of Medicine

Abstract: Gestational diabetes mellitus (GDM) is a metabolic disorder defined as glucose intolerance with the onset or first recognition during pregnancy. Women with GDM are at increased risk for adverse obstetric and perinatal outcome. The complications associated with GDM can be prevented by early recognition, intense monitoring and proper treatment. The present study was done to screen the high-risk pregnancy group for GDM, to find the incidence of abnormal results on screening and to correlate the abnormal results with the maternal and fetal outcomes. The study was done in a tertiary care hospital and teaching institute. It was a prospective cohort study. Selective screening for GDM was done in 150 pregnant women with high-risk factors. Screening was done with 50 g glucose challenge test (GCT) after 18 weeks, and if GCT was negative then the test was repeated after 28 weeks of pregnancy. The patients who were having an abnormal GCT were subjected to 100 g oral glucose tolerance test (OGTT). All GDM patients were followed up and treated with diet and/or insulin therapy till delivery to know maternal and fetal outcomes. The period of study was from April 2008 to March 2009. 7.3% of study population was OGCT positive. 6% of the study population was OGTT positive. Age >25 years, obesity, family history of DM, and past history of GDM were the risk factors significantly associated with GDM. One newborn had hypoglycemia and one had hyperbilirubinemia. The fetal and maternal outcome in GDM patients was good in our study due to early diagnosis and intervention. Women with GDM are at an increased risk for adverse obstetric and perinatal outcome. The increased morbidity in GDM is preventable by meticulous antenatal care.

Database: Medline

8) Third trimester abnormal oral glucose tolerance test and adverse perinatal outcome

Author(s): Arbib N.; Gabbay-Benziv R.; Aviram A.; Sneh-Arbib O.; Wiznitzer A.; Hod M.; Chen R.; Hadar E.

Source: Journal of Maternal-Fetal and Neonatal Medicine; Jun 2016 ; p. 1-5

Publication Date: Jun 2016

Publication Type(s): Journal: Article In Press

Available in full text at Journal of Maternal-Fetal and Neonatal Medicine, The - from Taylor & Francis

Abstract: Objective: To compare perinatal outcome of women after third trimester oral glucose tolerance test (GTT) following normal glucose challenge test (GCT) stratified by test results. Study design: Retrospective cohort study of women delivered in a tertiary, university affiliated medical center (2007-2012). Inclusion criteria were women with a normal 50g GCT (28 gestational weeks. Gestational diabetes mellitus (GDM) was defined as >2 pathological values on GTT (Carpenter and Coustan's criteria). Perinatal outcome was stratified by GTT results: normal (if all 4 values were normal), single pathological value or GDM. Logistic regression analysis was utilized to adjust outcomes to potential confounders. Results: Overall, 323 women met inclusion criteria. Of them, 277 (85.8%) had 4 normal values, 32 (9.9%) had a single pathological value and 14 (4.3%) had late-onset GDM. Infants of mothers diagnosed and treated as GDM had lower birth weights, compared to non-diabetics and those with a single pathological value GTT. Mothers with GTT >1 pathological values had statistically insignificant higher rates of cesarean delivery. However, this difference was not significant after adjustment to potential confounders. Conclusion: Treatment of late-onset GDM may lead to lower birthweights, presumably due to glucose control. No association was found with cesarean delivery or neonatal outcome. Copyright © 2016 Informa UK Limited, trading as Taylor & Francis Group.

Database: EMBASE

9) Clinical indications for abnormal early gestational 50-g glucose tolerance testing

Author(s): Samuel A.; Simhan H.N.

Source: American Journal of Perinatology; 2011; vol. 28 (no. 6); p. 485-487

Publication Date: 2011

Publication Type(s): Journal: Article

Abstract: Providers occasionally screen women thought to be at particularly increased risk of gestational diabetes mellitus (GDM) with a first- or second-trimester (early) glucose tolerance test (GTT). We sought to describe how the frequency of abnormal early GTT varies by indication for testing. This is a retrospective cohort study of women receiving prenatal care in our clinic who underwent a 50-g GTT at less than 24 weeks between 2003 and 2006. Three hundred five women received an early GTT. The most common indications for early screening were obesity (53%), family history of diabetes (15%), prior history of GDM (10%), and multifetal gestation (5%). The frequency of abnormal testing in patients with multifetal gestations and a personal history of GDM was higher than in those undergoing early testing because of obesity. The frequency of abnormal early GTT varies by indication for testing. These data may be used in the allocation of health care resources. © 2011 by Thieme Medical Publishers, Inc.

Database: EMBASE

10) Gestational diabetes mellitus

Author(s): Ben-Ziv R.G.; Hod M.

Source: Fetal and Maternal Medicine Review; Aug 2008; vol. 19 (no. 3); p. 245-269

Publication Date: Aug 2008

Publication Type(s): Journal: Review

Abstract:GDM is defined as "carbohydrate intolerance of variable severity with onset or first recognition during pregnancy." The prevalence of GDM is about 2-5% of pregnancies and it depends of the prevalence of type 2 DM in the population. The pathogenesis of GDM is a combination of insulin resistance (of normal pregnancy and a chronic form in GDM patients), B cell dysfunction of autoimmune origin and/or from genetic mutations. GDM is associated with chronic insulin resistance, genetic changes and placental transport differences compared to non-diabetic pregnant women. The pathogenesis of GDMresembles that of type 2 DM. Indeed, a large percentage ofGDM patients turn in to type 2 DM in the years after pregnancy. GDM has both maternal and fetal complications: for the mother the risk is mainly long term - the progress to type 2 DM and metabolic syndrome. For the fetus there are both short and long term complications - fetal death, aberrant fetal growth mainly macrosomia with its effect on delivery and risk of shoulder dystocia and metabolic/haematologic changes (hypoglycaemia, hypokalaemia, hyperbilirubinaemia, hypocalcaemia, polycythaemia and respiratory distress syndrome). The long term risks for the fetus are adverse neurological and cognitive outcomes and mainly early onset metabolic syndrome. For most women, glucose screening should be conducted at 24-28 weeks- gestation with the use of a 50-g oral glucose load. A value of 7.8 mmol/L (140 mg/dL) or greater necessitates a full diagnostic 100-g oral glucose tolerance test (GTT). Testing at this time not only enables the obstetrician to assess glucose tolerance in the presence of the insulin-resistant state of pregnancy but, should GDM be diagnosed, permits treatment to begin before excessive fetal growth has occurred. Those women who seem to be at high risk for GDM should be tested by OGTT as early as possible. If the initial screen is negative, they should be retested at 24-28 weeks- gestation**.** Once a diagnosis of GDM is made, women should be under close perinatal surveillance. Diet treatment is advised in all. The goal of treatment is reducing the fetal and maternal morbidity and mortality related with GDM. The exact glucose values needed to do so are still not clear. The decision to start pharmacological treatment depends on the glycaemic controlwith diet treatment and gestational age at diagnosis. The options for pharmacological treatment are insulin, which is considered the most acceptable treatment, or oral anti-diabetic drugs such as metformin and glyburide. It is extremely important to maintain good glycaemic control in order to reduce maternal and fetal morbidity and mortality during pregnancy and delivery. Concerning the time and mode of delivery, there is a higher rate of cesarean section in GDM women. The decision whether and when to induce delivery depends on gestational age, estimated fetal weight and maternal glycaemic control and Bishop score. Themain reasons for timed delivery are fear of fetal death and shoulder dystocia. When estimated fetal weight is 4,500 g or more, caesarean delivery may be considered because it may reduce the likelihood of permanent brachial plexus injury in the infant. Future research is needed regarding prevention of GDM, treatment goals and effectiveness of interventions, guidelines for pregnancy care and prevention of long term metabolic sequelae for both the infant and the mother. Copyright © 2008 Cambridge University Press.

Database: EMBASE

11) Use of oral glucose tolerance test in early pregnancy to predict late-onset gestational diabetes mellitus in high-risk women.

Author(s): Phaloprakarn, Chadakarn; Tangjitgamol, Siriwan

Source: The journal of obstetrics and gynaecology research; Jun 2008; vol. 34 (no. 3); p. 331-336

Publication Date: Jun 2008

Publication Type(s): Journal Article

Available in full text at Journal of Obstetrics and Gynaecology Research - from John Wiley and Sons

Abstract: To evaluate if any single plasma glucose level from the four values of the normal 100-g oral glucose tolerance test (OGTT) in early pregnancy (or =155 mg/dL (8.6 mmol/L) were 89.7%, 64.3%, 38.9%, 96.1%, and 0.77, respectively. A 1-h glucose value > or =155 mg/dL at the early OGTT yielded the best diagnostic performance. However, the low specificity and PPV rendered it suboptimal to predict late-onset GDM. Nevertheless, a considerable number of high-risk women could avoid the second OGTT in late pregnancy due to its high sensitivity and NPV.

Database: Medline

12) Gestational diabetes mellitus manifests in all trimesters of pregnancy.

Author(s): Seshiah V; Balaji V; Balaji MS; Paneerselvam A; Arthi T; Thamizharasi M; Datta M

Source: Diabetes Research & Clinical Practice; Sep 2007; vol. 77 (no. 3); p. 482-484

Publication Date: Sep 2007

Publication Type(s): Academic Journal

Abstract: Screening for GDM is usually performed around 24-28 weeks of gestational age. We undertook a study to estimate the prevalence of glucose intolerance during different trimesters, as data in this aspect is sparse. A total of 4151 consecutive pregnant women irrespective of gestational weeks attending antenatal health posts across Chennai city underwent a 75g OGTT recommended by WHO and diagnosed GDM if 2hr PG value >/=140mg/dl. Women who had normal OGTT at the first visit were screened with a repeat OGTT at the subsequent visits. Among the screened, 741 women (17.9%) had 2hr PG>/=140mg/dl and were identified to have gestational diabetes. Analysis based on gestational weeks revealed that out of the 741 GDM women, 121 (16.3%) were within 16 weeks, 166 (22.4%) were between 17 and 23 weeks and 454 (61.3%) were more than 24 weeks of gestation. Observation in this study was that 38.7% developed gestational diabetes even prior to 24th week of gestation. Out of the total 741 GDM women, 214 (28.9%) were diagnosed on repeat testing at subsequent visits. Glucose intolerance occurs in the early weeks of gestation. Women who had normal glucose tolerance in the first visit require repeat OGTT in the subsequent visits.

Database: CINAHL

13) Prediction of gestational diabetes mellitus in a high-risk group by insulin measurement in early pregnancy.

Author(s): Bitó, T; Földesi, I; Nyári, T; Pál, A

Source: Diabetic medicine : a journal of the British Diabetic Association; Oct 2005; vol. 22 (no. 10); p. 1434-1439

Publication Date: Oct 2005

Publication Type(s): Journal Article

Available in full text at Diabetic Medicine - from John Wiley and Sons

Abstract: We hypothesized that an increased serum insulin level in early pregancy reflects an increased demand on the compensatory capacity of the pregnant woman, and can serve as a predictor of gestational diabetes mellitus (GDM). A 2-h, 75-g oral glucose tolerance test (OGTT), with fasting and 2-h postprandial serum insulin determination, was performed in 71 pregnant women with one or more risk factors for GDM before gestation week 16. In 64 patients, subsequent OGTTs were performed at gestation weeks 24-28, and in the event of a negative result, at gestation weeks 32-34. Insulin determination at fasting and at 120 min had sensitivities of 69.2% and 92.3%, and specificities of 96.4% and 85.7%, respectively, for the prediction of GDM at gestation weeks 24-28. The sensitivities decreased to 33.3% and 75.0%, respectively, for the prediction of GDM at gestation weeks 32-34. Insulin determination at fasting and at 120 min had positive predictive values of 0.90 and 0.75, respectively, for the prediction of GDM at gestation weeks 32-34. The negative predictive values of fasting and 120-min serum insulin determination at gestation week < or = 16 were 0.87 and 0.96, respectively, for the prediction of GDM at gestation weeks 24-28. Increased serum insulin levels both at fasting and 120 min before gestation week 16 were very strong predictive factors for GDM by gestation weeks 32-34 with an odds ratio of 16.6 and 13.3, respectively. Serum insulin determination at gestation week < or = 16 is an easy and reliable method with which to predict GDM in a high-risk group**.** Despite a negative OGTT, patients with an elevated fasting and/or 120-min serum insulin level at gestation week < or = 16 should be managed in the same way as those with GDM. Considering the very high negative predictive value of the method, patients with a normal fasting and/or 120-min serum insulin level at gestation week < or = 16 should undergo an OGTT only at gestation weeks 32-34.

Database: Medline

14) Oral glucose tolerance testing at gestational weeks < or =16 could predict or exclude subsequent gestational diabetes mellitus during the current pregnancy in high risk group.

Author(s): Bitó, Tamás; Nyári, Tibor; Kovács, László; Pál, Attila

Source: European journal of obstetrics, gynecology, and reproductive biology; Jul 2005; vol. 121 (no. 1); p. 51-55

Publication Date: Jul 2005

Publication Type(s): Comparative Study Journal Article

Abstract: An oral glucose tolerance test with a result that is negative but close to the diagnostic cut-off in early pregnancy was hypothesized to serve as a predictor of subsequent gestational diabetes in a high risk group. The aim of the study was to determine those cut-off values of OGTT at gestational weeks < or =16, which can predict or exclude subsequent onset of GDM in a high risk group. Pregnant women at high risk of gestational diabetes (n = 163) underwent a 2-h, 75-g oral glucose tolerance test at gestational weeks < or =16 were analyzed in this study. In the event of a negative result, subsequent oral glucose tolerance tests were performed at gestational weeks 24-28 and 32-34. The sensitivity, the specificity, the positive and negative predictive values and the Odds ratio of the best cut-off values of fasting and postload glucose levels were calculated. The best cut-off

values to exclude subsequent GDM for fasting and postload glucose were 5.0 and 6.2 mmol/l, respectively. In combination, the best cut-off values were 5.3 mmol/l for fasting and 6.8 mmol/l for postload glucose, with negative predictive values of 0.97 and 0.71 and sensitivities of 96.9 and 86.3 at gestational weeks 24-28 and 32-34, respectively. Combination of these cut-off values with obesity proved to be very predictive for gestational diabetes by gestational weeks 32-34, with an Odds ratio of 6.0 [95% confidence interval: 1.7-21.0]. With regard to the very high negative predictive value of the method, pregnant women with glucose levels of < or =5.3 mmol/l at fasting and of < or = 6.8 mmol/l at postload in gestational weeks < or =16 should undergo subsequent oral glucose tolerance testing merely at gestational weeks 32-34. Approximately a quarter (24.5%) of the pregnant women at risk of gestational diabetes satisfied these criteria.

Database: Medline

15) Risk factors for early diagnosis of gestational diabetes mellitus

Author(s): Bunthalarath S.; Sunsaneevithayakul P.; Boriboohirunsarn D.

Source: Journal of the Medical Association of Thailand = Chotmaihet thangphaet; Oct 2004

Publication Date: Oct 2004

Publication Type(s): Journal: Article

Abstract: To determine factors possibly associated with early development of GDM (before 24 weeks of gestation). A total of 196 pregnant women who were at risk for GDM and started antenatal care at antenatal clinic before 24 weeks of gestation, Siriraj Hospital between January 2002 and December 2002 were enrolled. Those who were known cases of DM before pregnancy were excluded. Screening test with 50 g GCT was offered to all participants at their first visits and 100g OGTT was used as a diagnostic test. If GDM was not diagnosed, they were retested between 28-32 weeks using the same criteria. Early GDM was defined as the diagnosis of GDM before 24 weeks of gestation. Late GDM was defined as the diagnosis of GDM later than 24 weeks of gestation. Clinical risk factors of the 2 groups were compared to determine the association with early development of GDM. Of 196 women with GDM, 127 (64.5%) were diagnosed before 24 weeks of gestation, and 69 (35.5%) were diagnosed later. Obesity was only one significant risk factor for early development of GDM. Early GDM group were more likely to be obese than late GDM group (20.5% and 8.7% respectively, p = 0.042). Other clinical risks were not significantly different between the 2 groups. Early GDM were more likely to diagnose if 3 or more clinical risk factors were found compared to late GDM group (8.75% and 2.9% respectively) but not significantly different. Obese women (BMI e" 27 kg/m2) should attend the screening program at early pregnancy to reduce maternal complications and adverse neonatal outcomes.

Database: EMBASE

16) Glucose screening test results in first and early third trimester of pregnancy: Is there any correlation?

Author(s): Bhattacharya S.M.

Source: Journal of Obstetrics and Gynaecology Research; Dec 2002; vol. 28 (no. 6); p. 304-307

Publication Date: Dec 2002

Publication Type(s): Journal: Article

Available in full text at Journal of Obstetrics and Gynaecology Research - from John Wiley and Sons

Abstract: Objective: This study aims to find correlation between glucose screening test (GST) results done in the first trimester and again in the early third trimester of pregnancy. Methods: Analysis of the records of 458 cases of pregnant women (non-diabetic in early pregnancy as detected by glucose screening test and glucose tolerance test) between 11 and 35 years of age with a body mass index of less than 25 kg/m2 was done. These women underwent GST in the first trimester (GST-1) and again in the early third trimester (GST-2). When the GST-2 was 140 mg% or above, a standard '3 hour glucose tolerance test' was done (GT TEST) with 100 g of glucose. The GST was done by measuring the plasma glucose level 1 hour after taking 50 g of glucose, irrespective of food intake. Results: A substantial correlation between the two groups of measurements was found. Based on the available data, a GST-1 vaue of 99 mg% or less was seldom associated with GST-2 value of 140 mg% or more (GT TEST was positive in none). It was observed that 100% of cases with GST-1 value of 140 mg% or more had GST-2 of 140 mg% or more. Out of those having GST-2 value of 140 mg% or more, 72% had GT TEST positive. In the intermediate group (i.e. those patients having GST-1 value of 100 mg% - 139 mg%), 51.7% had GST-2 values of 140 mg% or more. Out of these 51.7% cases, only 23% cases turned out to be GT TEST positive. The correlation coefficients (CC) worked out to be 0.38 (substantial correlation for $0.20 < CC < 0.70$). Conclusion: From the observations state above, it is concluded that for women with GST-1 of 99 mg% or less, a GST-2 is not necessary. For those having GST-1 of 140 mg% or more, a GT TEST is absolutely necessary instead of repeating the screening test again in the third trimester. But it is in the intermediate group (i.e. with GST-1 value of 100 mg%-139 mg%) where the glucose screening test should be repeated in the early third trimester and GT TEST as and when necessary.

Database: EMBASE

17) Gestational diabetes diagnosed in third trimester pregnancy and pregnancy outcome

Author(s): Lao T.T.; Tam K.-F.

Source: Acta Obstetricia et Gynecologica Scandinavica; 2001; vol. 80 (no. 11); p. 1003-1008

Publication Date: 2001

Publication Type(s): Journal: Article

Available in full text at Acta Obstetricia Et Gynecologica Scandinavica - from John Wiley and Sons

Abstract: Background. The clinical significance of gestational diabetes diagnosed in the third trimester is unclear. A prospective observational study was performed on a cohort of women without pre-existing gestational diabetes or other medical disorders to examine the effect of gestational diabetes on pregnancy complications and infant outcome. Methods. Four hundred and eighty-nine consecutive women were assessed at 28-30 weeks by random glucose screening and/or a 75 g oral glucose tolerance test. The subsequent management was according to established departmental protocols. The outcome of pregnancy was compared among the groups with negative screening, positive screening but normal glucose tolerance, and gestational diabetes which was controlled with diet therapy. Results. Women with gestational diabetes (n=67 or 13.7%) had significantly increased maternal age, pre-pregnancy weight and body mass index, hemoglobin levels

at booking and at 36-38 weeks, and incidences of parity >1, pre-eclampsia, and female infants, while the gestational age was shorter and there was no significant difference in the birthweight outcome or neonatal morbidity. Conclusions. Despite diet treatment, gestational diabetes diagnosed in the last trimester is associated with increased risk of pre-eclampsia and shorter length of gestation, and this is likely to reflect a pathological process rather than the physiological effect of pregnancy on maternal glucose tolerance.

Database: EMBASE

18) Longitudinal changes in glucose metabolism during pregnancy in obese women with normal glucose tolerance and gestational diabetes mellitus

Author(s): Catalano P.M.; Huston L.; Amini S.B.; Kalhan S.C.

Source: American Journal of Obstetrics and Gynecology; 1999; vol. 180 (no. 4); p. 903-916

Publication Date: 1999

Publication Type(s): Journal: Conference Paper

Abstract:OBJECTIVE: This study prospectively evaluated the longitudinal changes in insulin sensitivity, insulin response, and endogenous (primarily hepatic) glucose production and suppression during insulin infusion in women with normal glucose tolerance (control) and gestational diabetes mellitus before and during a planned pregnancy. STUDY DESIGN: Eight control subjects and 7 subjects in whom gestational diabetes mellitus developed were evaluated with an oral glucose tolerance test, an intravenous glucose tolerance test, and hyperinsulinemic-euglycemic clamp with infusion of [6,6 2H2]glucose before conception and at 12 to 14 and 34 to 36 weeks' gastation. Insulin response was estimated as the area under the curve during the intravenous glucose tolerance test. Basal endogenous glucose production was estimated from isotope tracer dilution during steady state with [6,6 2H2]glucose and suppression during insulin infusion. Insulin sensitivity to glucose was defined as the glucose infusion rate required to maintain euglycemia during steady-state insulin infusion. Body composition was estimated with hydrodensitometry. Data were analyzed with 2-way analysis of variance with repeated measures for 2 groups. RESULTS: There were increases in first-phase (P = .006) and second-phase (P = .0001) insulin responses in both groups with advancing gestation, but the increase in second-phase response was significantly greater (P = .02) in the gestational diabetes mellitus group than in the control group. Basal glucose production increased significantly (P = .0001) with advancing gestation, and there was resistance to suppression during insulin infusion in both groups (P = .0001). There was less suppression of endogenous glucose production however, in the gestational diabetes mellitus group than in the control group (P = .01). Insulin sensitivity decreased with advancing gestation in both groups (P = .0001), and there was lower insulin sensitivity in the gestational diabetes mellitus group than in the control group (P = .04). Significant decreases in insulin sensitivity with time (P = .0001) and between groups (P = .03) remained when the data were adjusted for differences in insulin concentration or residual hepatic glucose production. CONCLUSION: Obese women in whom gestational diabetes mellitus develops have a significant increase in insulin response but decreases in insulin sensitivity and suppression of hepatic glucose production during insulin infusion with advancing gestation with respect to a matched control group. These metabolic abnormalities in glucose metabolism are the hallmarks of type 2 diabetes, for which these women are at increased risk in later life.

Database: EMBASE

19) Diabetic screening in pregnancy

Author(s): Ng C.S.A.; Lim L.S.; Wong Y.C.

Source: Singapore Medical Journal; 1981; vol. 22 (no. 2); p. 59-63

Publication Date: 1981

Publication Type(s): Journal: Article

Abstract: Diabetic Screening in pregnancy is necessary for detecting gestational diabetes and unsuspecting diabetics early in pregnancy for better antenatal care and delivery. Early control of the blood sugar levels will prevent complications in late pregnancy. This study of 497 screened pregnant women draws attention to areas where improvement can be instituted. It emphasizes the criteria for screening and highlights the factors which are responsible for abnormal glucose tolerance and diabetes in pregnancy. Positive detection for diabetes was highest among pregnant women who are Indians, above 35 years, with high parity (three or more), with family history of diabetes in first degree relatives and with glycosuria. The need to repeat a Glucose Tolerance Test to diagnose diabetes in the third trimester is shown in women who have high risk factors and are found to have a negative GTT in the first and second trimester.

Database: EMBASE

Strategy 121976

#	Database	Search term	Results
1	Medline	(negative ADJ2 GTT).ti,ab	4
2	Medline	(negative ADJ2 "glucose tolerance test*").ti,ab	20
3	Medline	("glucose tolerance test*" OR GTT).ti,ab	20961
4	Medline	(retest* OR "re test*").ti,ab	28718
5	Medline	(3 AND 4)	43
6	Medline	exp "GLUCOSE TOLERANCE TEST"/	31397
7	Medline	exp OBESITY/	167217
8	Medline	exp PREGNANCY/	800592
9	Medline	(6 AND 7 AND 8)	343
10	Medline	(4 AND 9)	2
11	Medline	(4 AND 6)	56
12	Medline	exp "DIABETES, GESTATIONAL"/	8973
13	Medline	(6 AND 7 AND 12)	149
14	Medline	(repeat*).ti,ab	434456

15	Medline	(6 AND 7 AND 14)	66
16	Medline	exp "TIME FACTORS"/	1075215
17	Medline	(6 AND 12 AND 16)	114
18	EMBASE	*"GLUCOSE TOLERANCE TEST"/	7024
19	EMBASE	exp "PREGNANCY DIABETES MELLITUS"/	27993
20	EMBASE	exp "MATERNAL OBESITY"/	3154
21	EMBASE	(18 AND 19 AND 20)	5
22	EMBASE	(18 AND 20)	6
23	EMBASE	exp OBESITY/	426729
24	EMBASE	(18 AND 19 AND 23)	33
25	EMBASE	exp "GLUCOSE TOLERANCE TEST"/	53619
26	EMBASE	(20 AND 25)	187
27	EMBASE	(repeat* OR "re test*" OR retest*).ti,ab	612913
28	EMBASE	(26 AND 27)	1
29	EMBASE	exp "TEST RETEST RELIABILITY"/	14789
30	EMBASE	(19 AND 25 AND 29)	0
31	EMBASE	(weeks).ti,ab	969923
32	EMBASE	(26 AND 31)	68
33	EMBASE	(25 AND 27)	1408
34	EMBASE	(18 AND 27)	177

35	Medline	(OGTT OR GTT OR "glucose tolerance test").ti,ab	19152
36	Medline	(retest* OR rescreen* OR repeat* OR "re test*" OR "re screen*").ti,ab	461363
37	Medline	(6 OR 35)	39340
38	Medline	(obes*).ti,ab	225786
39	Medline	(7 OR 38)	268156
40	Medline	(36 AND 37 AND 39)	169
41	Medline	exp "TIME FACTORS"/	1075215
42	Medline	(37 AND 41)	3147
43	EMBASE	(34 ADJ2 weeks).ti,ab	11862
44	Medline	(pregn*).ti,ab	390247
45	Medline	(8 OR 44)	881200
46	Medline	(42 AND 45)	328
47	Medline	(34 ADJ2 weeks).ti,ab	9114
48	Medline	(37 AND 47)	51
49	EMBASE	(retest* OR rescreen* OR repeat* OR "re test*" OR "re screen*").ti,ab	614518
50	EMBASE	(23 AND 25 AND 49)	270
51	EMBASE	(19 AND 50)	24
52	EMBASE	(18 AND 49)	182
53	CINAHL	(OGTT OR GTT OR "glucose tolerance test").ti,ab	1872
54	CINAHL	exp "GLUCOSE TOLERANCE	2989

		TEST"/	
55	CINAHL	(53 OR 54)	3666
56	CINAHL	(retest* OR rescreen* OR repeat* OR "re test*" OR "re screen*").ti,ab	38533
57	CINAHL	(55 AND 56)	94
58	CINAHL	exp "DIABETES MELLITUS, GESTATIONAL"/	2975
59	CINAHL	exp OBESITY/	42671
60	CINAHL	(54 AND 58 AND 59)	36
61	EMBASE	(18 AND 20)	6
62	EMBASE	exp "PREDICTIVE VALUE OF TESTS"/	113151
63	EMBASE	(18 AND 19 AND 62)	16
64	EMBASE	exp "HIGH RISK PREGNANCY"/	10252
65	EMBASE	(18 AND 62 AND 64)	0
66	EMBASE	(18 AND 64)	15