

Review on Gestational Diabetes Mellitus.

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ABSTRACT: Gestational diabetes mellitus (GDM) is a lack of tolerance of carbohydrates with onset or first recognition during pregnancy. This detection is independent of insulin use or persistence of the condition after the pregnancy and does not apply to pregnant women with previously diagnosed diabetes. Gestational diabetes mellitus (GDM) is related to reduce pancreatic β - cell function, which results from the full spectrum of causes of β - cell dysfunction in young women. Gestational diabetes mellitus (GDM) is a disease that often manifests in mid to late pregnancy with symptoms including hyperglycemia, insulin resistance, and fetal mal-development. Patients diagnosed with gestational diabetes should control their blood glucose levels, exercise, and undergo nutrition counseling to maintain normoglycemia.

KEYWORDS: Gestational diabetes mellitus (GDM), pancreatic β -cell function, Hyperglycemias. Normoglycemia.

I. INTRODUCTION.

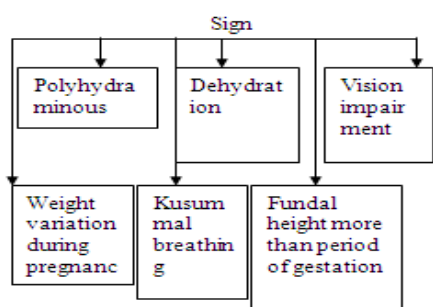
Gestational diabetes mellitus is described as the lack of tolerance of glucose amount with onset or first recognition during pregnancy [1]. Gestational diabetes mellitus (GDM) attacks between 2% and 5% of pregnant women. Risk factors for GDM comprise a history of macrosomia, strong family history of diabetes, and obesity [2]. Gestational diabetes mellitus (GDM) is related to an increased frequency of gestational, perinatal, and neonatal complications [3]. GDM is the consequence of the same broad spectrum of physiological and genetic abnormalities that characterize diabetes outside of pregnancy. Women with GDM are at a high chance of having or developing diabetes when they are not pregnant. GDM is tested through the screening of pregnant women for clinical risk factors and, among at-risk women, testing for abnormal glucose tolerance that is usually, but not invariably, mild and asymptomatic [4]. Now, GDM is the typical medical complication of pregnancy, and the prevalence of undiagnosed hyperglycemia and even overt diabetes in young women is increasing [5].

CAUSE OF GDM

The major cause of GDM is Maternal overweight and obesity, later age at childbearing, previous history of GDM, family history of type 2 diabetes mellitus, and ethnicity.[6] Gestational diabetes mellitus (GDM) is related to reduce pancreatic β -cell function, which results from the full spectrum of causes of β -cell dysfunction in young women. [7] Excessive gestational weight gain, increased fat consumption, a low vitamin D level, psychological stress, and negative mood are risk factors for GDM. [8] During pregnancy woman's body produces a large number of hormones .consequently a woman's body becomes insulin resistant .so the body cannot respond well to insulin and blood sugar levels increase.

SYMPTOM OF GESTATIONAL DIABETES MELLITUS

Gestational diabetes mellitus symptoms are Prevalence of depression, anxiety, and stress.[9] Gestational diabetes mellitus (GDM) is a disease that often manifests in mid to late pregnancy with symptoms including hyperglycemia, insulin resistance, and fetal mal-development.[10] Generally, there are no symptoms, or the symptoms are very moderate. The symptoms include blurred vision, fatigue, frequent infections including those of the bladder, vagina, and skin, increase thirst, increased urination, nausea, and vomiting.



DIAGNOSIS OF GESTATIONAL DIABETES MELLITUS

Diabetes in Pregnancy Study Group India (DIPSI) recommends 2-h Plasma glucose (PG) > or = 140 mg/dL with 75g oral glucose load to diagnose GDM, akin to WHO criteria. Recently, International Association of Diabetes in Pregnancy Study Group (IADPSG) recommends any one value of Fasting plasma glucose (FPG) > or = 92 mg/dL, 1-h PG > or = 180 mg/dL or 2-h PG > or = 153 mg/dL to diagnose GDM [11]. A pregnant woman diagnosed to have GDM is at an increased risk for developing Type II diabetes in the future [12]. The current recommendation for diagnosis is the oral glucose tolerance test (OGTT). HbA1c test is a diagnostic tool for GDM [13].

TREATMENT OF GESTATIONAL DIABETES MELLITUS

Metformin: maybe a logical therapy for ladies with gestational DM. [14]

Insulin: All women with gestational diabetes should receive advice from a dietitian with specific knowledge within the area and dietary intervention should be initial therapy for many women. Dietary advice must be individualized, taking into consideration factors like the patient's body mass index (BMI) and overall nutritional requirements. Care should be taken to avoid excessive caloric restriction, as this will end in ketonuria and adverse pregnancy outcomes [15].

Moderate-intensity exercise, like a brisk walk for a half-hour every day, can decrease insulin resistance and will be encouraged. Insulin therapy remains the cornerstone of pharmacotherapy and its use is becoming increasingly prevalent. All women who started on insulin need education regarding the storage of insulin, correct injection technique also as recognition and treatment of hypoglycemia. Insulin therapy must be individualized and depends upon the patient's blood sugar concentrations, weight, and wishes.

The regimen is decided by whether the blood sugar is elevated when fasting, after a meal, or both. [15]

Patients diagnosed with gestational diabetes should control their blood sugar levels, exercise, and undergo nutrition counseling for the aim of maintaining normoglycemia. The foremost common accepted treatment goal is to take care of a fasting capillary blood sugar level of but 95 to 105 mg per dL (5.3 to 5.8 mmol per L). The postprandial therapy goal should be a capillary blood sugar level of but 140 mg per dL (7.8 mmol per L) at one hour and fewer than 120 mg per dL (6.7 mmol per L) at two hours. [16]

COMPLICATION OF GESTATIONAL DM.

Serious prenatal complications specifically related to GDM are rare. Maternal obesity may be a risk factor for complications, no matter diabetes status. [17]

Accurate control of maternal hyperglycemia and high patient compliance are acute for an efficient reduction of perinatal complications in patients with gestational DM. the specified plasma glucose level within the glycemic control of those patients should be reduced. [18]

PREVENTION METHODS

There are several ways we can prevent gestational DM. some of them are eating three equally spaced meals every day, eating fresh fruit and veggies, limiting snacks between meals, limiting saturated fats, including whole grains and avoiding sugary drinks, and learn to check labels for portion sizes.

RISK FACTOR.

Traditional risk factors for gestational DM are maternal age, pre-pregnancy weight, and a case history of diabetes, Orientals and first-generation Hispanics [19]. there is an opportunity of developing gestational hypertension, preeclampsia, and cesarean delivery for a mother who is with gestational DM. aside from this, women with a history of GDM also are at significantly higher risk of developing subsequent type 2 DM (T2DM) and cardiovascular diseases. [20]

II. CONCLUSION

GDM is a common medical problem that results from increased severity of insulin resistance as well as an impairment of the compensatory increase in insulin secretion. [21]

Advanced maternal age, family history of diabetes mellitus, non-white ethnicity, higher BMI,

weight gain in early adulthood, and cigarette smoking predict increased GDM risk. [22] Patients diagnosed with gestational diabetes should control their blood sugar levels, exercise, and undergo nutrition counseling for the aim of maintaining normoglycemia.

REFERENCES

- [1]. Buchanan TA, Xiang AH. Gestational diabetes mellitus. *The Journal of clinical investigation*. 2005 Mar 1; 115(3):485-91.
- [2]. Gilmartin AB, Ural SH, Repke JT. Gestational diabetes mellitus. *Reviews in obstetrics & gynecology*. 2008 Jan 1;1(3):129-34
- [3]. Cypryk K, Szymczak W, Czupryniak L, Sobczak M, Lewiński A. Gestational diabetes mellitus-an analysis of risk factors. *Endokrynologia Polska*. 2008;59(5):393-7
- [4]. Buchanan TA, Xiang AH. Gestational diabetes mellitus. *The Journal of clinical investigation*. 2005 Mar 1;115(3):485-91.)
- [5]. McIntyre HD, Catalano P, Zhang C, Desoye G, Mathiesen ER, Damm P. Gestational diabetes mellitus. *Nature reviews Disease primers*. 2019 Jul 11;5(1):1-9
- [6]. McIntyre HD, Catalano P, Zhang C, Desoye G, Mathiesen ER, Damm P. Gestational diabetes mellitus. *Nature reviews Disease primers*. 2019 Jul 11;5(1):1-9
- [7]. Buchanan TA, Xiang AH, Page KA. Gestational diabetes mellitus: risks and management during and after pregnancy. *Nature Reviews Endocrinology*. 2012 Nov;8(11):639-49
- [8]. Spaight C, Gross J, Horsch A, Puder JJ. Gestational diabetes mellitus. *Novelties in Diabetes*. 2016;31:163-78
- [9]. Lee KW, Ching SM, Hoo FK, Ramachandran V, Chong SC, Tusimin M, Nordin NM, Devaraj NK, Cheong AT, Chia YC. Neonatal outcomes and its association among gestational diabetes mellitus with and without depression, anxiety and stress symptoms in Malaysia: A cross-sectional study. *Midwifery*. 2020 Feb 1;81:102586
- [10]. Yao L, Wan J, Li H, Ding J, Wang Y, Wang X, Li M. Resveratrol relieves gestational diabetes mellitus in mice through activating AMPK. *Reproductive Biology and Endocrinology*. 2015 Dec;13(1):1-7
- [11]. Seshiah V, Balaji V, Shah SN, Joshi S, Das AK, Sahay BK, Banerjee S, Zargar AH, Balaji M. Diagnosis of gestational diabetes mellitus in the community. *The Journal of the Association of Physicians of India*. 2012 Aug 1;60:15-7
- [12]. Mishra S, Rao CR, Shetty A. Trends in the diagnosis of gestational diabetes mellitus. *Scientifica*. 2016 Jan 1;2016.
- [13]. Renz PB, Cavagnoli G, Weinert LS, Silveiro SP, Camargo JL. HbA1c test as a tool in the diagnosis of gestational diabetes mellitus. *PLoS One*. 2015 Aug 20;10(8):e0135989
- [14]. Rowan JA, Hague WM, Gao W, Battin MR, Moore MP. Metformin versus insulin for the treatment of gestational diabetes. *New England Journal of Medicine*. 2008 May 8;358(19):2003-15
- [15]. Donovan PJ, McIntyre HD. Drugs for gestational diabetes: Australian prescriber. 2010;33. 141-144.
- [16]. Turok DK, Ratcliffe S, Baxley EG. Management of gestational diabetes mellitus. *American family physician*. 2003 Nov 1;68(9):1767-72
- [17]. Mitanchez D. Foetal and neonatal complications in gestational diabetes: perinatal mortality, congenital malformations, macrosomia, shoulder dystocia, birth injuries, neonatal complications. *Diabetes & metabolism*. 2010 Dec 1;36(6 Pt 2):617-27.
- [18]. Hod M, Rabinerson D, Kaplan B, Peled Y, Bar J, Shindel B, Merlob P, Ovadia J, Neri A. Perinatal complications following gestational diabetes mellitus how 'sweet' is ill?. *Acta obstetrica et Gynecologica Scandinavica*. 1996 Jan 1;75(9):809-15.
- [19]. Berkowitz GS, Lapinski RH, Wein R, Lee D. Race/ethnicity and other risk factors for gestational diabetes. *American journal of epidemiology*. 1992 May 1;135(9):965-73.
- [20]. Lee KW, Ching SM, Ramachandran V, Yee A, Hoo FK, Chia YC, Sulaiman WA, Suppiah S, Mohamed MH, Veettil SK. Prevalence and risk factors of gestational diabetes mellitus in Asia: a systematic review and meta-analysis. *BMC pregnancy and childbirth*. 2018 Dec;18(1):1-20.
- [21]. Hawi, [14.04.21 03:26]
- [22]. Setji TL, Brown AJ, Feinglos MN. Gestational diabetes mellitus. *Clinical diabetes*. 2005 Jan 1; 23(1):17-24.
- [23]. Solomon CG, Willett WC, Carey VJ, Rich-Edwards J, Hunter DJ, Colditz GA, Stampfer MJ, Speizer FE, Spiegelman D, Manson JE. A prospective study of pregravid determinants of gestational diabetes mellitus. *Jama*. 1997 Oct 1;278(13):1078-83.