

Gebelik, plasentadan salgılanan büyüme hormonu, CRH, plasental laktojen, prolaktin ve progesteron gibi diabetojenik hormonların sekresyonu nedeniyle insülin direncinin eşlik ettiği bir durumdur. Temelde söz konusu metabolik değişiklikler fetüsün ihtiyaç duyacağı besin maddeleri rezervinin garanti altına alınmasını amaçlar.

Gestasyonel diabet, gebelikle ilişkili olarak ortaya çıkan insülin direncini karşılayacak pankreatik fonksiyon gösteremeyen kadınlarda ortaya çıkan bir durumdur. Artmış preklampsi riski, makrozomi ve sezeryan oranları ilişkili morbidite temel olumsuz sonuçlar olarak sayılabilir.

### TERMINOLOJİ

Gestasyonel diabet tanımı, ilk olarak gebelik sırasında tespit edilen diabet ya da anormal glukoz toleransı olarak tanımlanmıştır.[1] İlerleyen yıllarda bu tanıma dahil olan gebeler arasında, daha önceden diabeti olanlarla gebelik ilişkili insülin direncine bağlı olarak 2.trimestr sonlarında ve 3.trimestrda ortaya çıkan tolerans bozukluğu gelişenleri ayırt etmek amaçlanmıştır. Bu da “aşırı diabet” tanımının ortaya konmasına neden olmuştur. ADA gestasyonel diabeti “gebelik öncesi diabet olmadığı kesin olarak bilinen gebelerde 2. ve 3.trimestr’da saptanan diabet” olarak tanımlamaktadır. [2].

### PREVELANS

Gestasyoneldiabetprevelansı A.B.D ‘degebe kadınlar arasında %6 olarak bildirilmektedir. Söz konusu oran tip2 DM prevelansıylakorele bir şekilde etnik ve ırksal farklılıklar göstermektedir. Yıllar içerisinde ilerleyen maternal yaş, ağırlık ve obezite sıklığı ile ilişkili olarak prevelansda da artış gözlenmektedir

Gestasyonel diabet ile ilişkili sayılabilecek olumsuz sonuçları sıralarsak;

- Preklampsi,gestasyonel hipertansiyon
- Polihidramnioz
- Makrozomi
- Doğum travması (Maternal ve infant)
- Operatif doğumlar ve Sezeryan
- Perinatalmortalite
- Fetal ve neonatalkardiyomyopati
- Neonatal Respiratuar ve metabolik problemler ( hipoglisemi, hiperbilirubinemi, hipokalsemi,polisitemi) 3-4]:

Söz konusu durumların gerçekleşme riski, maternal açlık kan şekeri düzeylerinin 75mg/dl üzerine çıkmasıyla ve GTT 1. Ve 2.saat değerlerindeki artışla artmaktadır. Burada etki sürekli bir etki olup risk artışı için net bir eşik değerden söz edilemez. 5,6].

tanan hastalar postpartum 4-12 hafta içerisinde 75gr GTT için tekrar çağırılmalıdır [72].

### Emzirme

Emzirme konusunda bilgilendirme ve telkin kaçınılmaz olmakla birlikte, emzirme maternal glukoz metabolizmasında iyileşmeye yol açarak glukoz tolerans testlerinde yanılmaya yol açabilir. Bu yüzden test sırasında emzirme önerilmez. [73], Ayrıca postpartum depresyonunda diabetic gebelerde diabetic olmayan gebelere oranla daha sık görüldüğü bilinmektedir. [74].

Gestasyonel diabet öyküsü olan kadınlar tip2 Diabet, metabolik sendrom, kardiyovasküler hastalıklar açısından risk altındadır. Bu konuda detaylı bilgilendirme yapılarak gerekli hayat tarzı değişiklikleri hastaya önerilmelidir.

### KAYNAKLAR

1. Proceedings of the 4th International Workshop-Conference on Gestational Diabetes Mellitus. Chicago, Illinois, USA. 14-16 March 1997. *Diabetes Care* 1998; 21 Suppl 2:B1.
2. Deputy NP, Kim SY, Conrey EJ, Bullard KM. Prevalence and Changes in Preexisting Diabetes and Gestational Diabetes Among Women Who Had a Live Birth - United States, 2012-2016. *MMWR Morb Mortal Wkly Rep* 2018; 67:1201.
3. Pettitt DJ, Knowler WC, Baird HR, Bennett PH. Gestational diabetes: infant and maternal complications of pregnancy in relation to third-trimester glucose tolerance in the Pima Indians. *Diabetes Care* 1980; 3:458.
4. Farrar D, Simmonds M, Bryant M, et al. Hyperglycaemia and risk of adverse perinatal outcomes: systematic review and meta-analysis. *BMJ* 2016; 354:i4694.
5. Hillier TA, Pedula KL, Schmidt MM, et al. Childhood obesity and metabolic imprinting: the ongoing effects of maternal hyperglycemia. *Diabetes Care* 2007; 30:2287.
6. Xiang AH, Wang X, Martinez MP, et al. Association of maternal diabetes with autism in offspring. *JAMA* 2015; 313:1425.
7. Xu G, Jing J, Bowers K, et al. Maternal diabetes and the risk of autism spectrum disorders in the offspring: a systematic review and meta-analysis. *J Autism Dev Disord* 2014; 44:766.
8. HAPO Study Cooperative Research Group, Metzger BE, Lowe LP, et al. Hyperglycemia and adverse pregnancy outcomes. *N Engl J Med* 2008; 358:1991.
9. Solomon CG, Willett WC, Carey VJ, et al. A prospective study of pregravid determinants of gestational diabetes mellitus. *JAMA* 1997; 278:1078.
10. Kim C, Liu T, Valdez R, Beckles GL. Does frank diabetes in first-degree relatives of a pregnant woman affect the likelihood of her developing gestational diabetes mellitus or nongestational diabetes? *Am J Obstet Gynecol* 2009; 201:576.e1.
11. Hedderson MM, Williams MA, Holt VL, et al. Body mass index and weight gain prior to pregnancy and risk of gestational diabetes mellitus. *Am J Obstet Gynecol* 2008; 198:409.e1.
12. Hedderson MM, Gunderson EP, Ferrara A. Gestational weight gain and risk of gestational diabetes mellitus. *Obstet Gynecol* 2010; 115:597.
13. Gibson KS, Waters TP, Catalano PM. Maternal weight gain in women who develop gestational diabetes mellitus. *Obstet Gynecol* 2012; 119:560.
14. Danilenko-Dixon DR, Van Winter JT, Nelson RL, Ogburn PL Jr. Universal versus selective gestational diabetes screening: application of 1997 American Diabetes Association recommendations. *Am J Obstet Gynecol* 1999; 181:798.
15. McIntyre HD. Discovery, Knowledge, and Action-Diabetes in Pregnancy Across the Translational Spectrum: The 2016 Norbert Freinkel Award Lecture. *Diabetes Care* 2018; 41:227.
16. Schaefer UM, Songster G, Xiang A, et al. Congenital malformations in offspring of women with hyperglycemia first detected during pregnancy. *Am J Obstet Gynecol* 1997; 177:1165.
17. Saccone G, Khalifeh A, Al-Kouatly HB, et al. Screening for gestational diabetes mellitus: one step versus two step approach. A meta-analysis of randomized trials. *J Matern Fetal Neonatal Med* 2018; :1.
18. Guo XY, Shu J, Fu XH, et al. Improving the effectiveness of lifestyle interventions for gestational diabetes prevention: a meta-analysis and meta-regression. *BJOG* 2019; 126:311.
19. Farrar D, Simmonds M, Bryant M, et al. Risk factor screening to identify women requiring oral glucose tolerance testing to diagnose gestational diabetes: A systematic review and meta-analysis and analysis of two pregnancy cohorts. *PLoS One* 2017; 12:e0175288.
20. Riccardi G, Vaccaro O, Rivellese A, et al. Reproducibility of the new diagnostic criteria for impaired glucose tolerance. *Am J Epidemiol* 1985; 121:422.
21. Conn JW. Interpretation of the glucose tolerance test: Necessity of standard preparatory diet. *Am J Med Sci* 1940; 199:555.
22. Lowe WL Jr, Scholtens DM, Lowe LP, et al. Association of Gestational Diabetes With Maternal Disorders of Glucose Metabolism and Childhood Adiposity. *JAMA* 2018; 320:1005.
23. Crowther CA, Hiller JE, Moss JR, et al. Effect of treatment of gestational diabetes mellitus on pregnancy outcomes. *N Engl J Med* 2005; 352:2477.
24. Hartling L, Dryden DM, Guthrie A, et al. Benefits and harms of treating gestational diabetes mellitus: a systematic review and meta-analysis for the U.S. Preventive Services Task Force and the National Institutes of Health Office of Medical Applications of Research. *Ann Intern Med* 2013; 159:123.
25. Poprzeczny AJ, Louise J, Deussen AR, Dodd JM. The mediating effects of gestational diabetes on fetal growth and adiposity in women who are overweight and obese.

- se: secondary analysis of the LIMIT randomised trial. *BJOG* 2018; 125:1558.25
26. Crowther CA, Hiller JE, Moss JR, et al. Effect of treatment of gestational diabetes mellitus on pregnancy outcomes. *N Engl J Med* 2005; 352:2477.26
  27. Landon MB, Spong CY, Thom E, et al. A multicenter, randomized trial of treatment for mild gestational diabetes. *N Engl J Med* 2009; 361:1339.27
  28. Palatnik A, Mele L, Landon MB, et al. Timing of treatment initiation for mild gestational diabetes mellitus and perinatal outcomes. *Am J Obstet Gynecol* 2015; 213:560.e1.28
  29. Landon MB, Rice MM, Varner MW, et al. Mild gestational diabetes mellitus and long-term child health. *Diabetes Care* 2015; 38:445.29
  30. American Diabetes Association. 14. Management of Diabetes in Pregnancy: Standards of Medical Care in Diabetes-2019. *Diabetes Care* 2019; 42:S165.30
  31. American Diabetes Association. Gestational diabetes mellitus. *Diabetes Care* 2004; 27 Suppl 1:S88.31
  32. Food and Nutrition Board, Institute of Medicine: U.S. Dietary Reference Intakes: Energy, Carbohydrates, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington, DC, National Academies Press, 2002 32
  33. Horton ES. Exercise in the treatment of NIDDM. Applications for GDM? *Diabetes* 1991; 40 Suppl 2:175. 33
  34. Schneider SH, Ruderman NB. Exercise and NIDDM. *Diabetes Care* 1993; 16:54.34
  35. Jovanovic-Peterson L, Durak EP, Peterson CM. Randomized trial of diet versus diet plus cardiovascular conditioning on glucose levels in gestational diabetes. *Am J Obstet Gynecol* 1989; 161:415.35
  36. Artal R, Wiswell R, Romem Y. Hormonal responses to exercise in diabetic and nondiabetic pregnant patients. *Diabetes* 1985; 34 Suppl 2:78.36
  37. Colberg SR, Sigal RJ, Fernhall B, et al. Exercise and type 2 diabetes: the American College of Sports Medicine and the American Diabetes Association: joint position statement. *Diabetes Care* 2010; 33:e147.37
  38. Raman P, Shepherd E, Dowswell T, et al. Different methods and settings for glucose monitoring for gestational diabetes during pregnancy. *Cochrane Database Syst Rev* 2017; 10:CD011069.38
  39. Hawkins JS, Casey BM, Lo JY, et al. Weekly compared with daily blood glucose monitoring in women with diet-treated gestational diabetes. *Obstet Gynecol* 2009; 113:1307.39
  40. Committee on Practice Bulletins—Obstetrics. ACOG Practice Bulletin No. 190: Gestational Diabetes Mellitus. *Obstet Gynecol* 2018; 131:e49. Reaffirmed 2019.40
  41. Hernandez TL, Friedman JE, Van Pelt RE, Barbour LA. Patterns of glycemia in normal pregnancy: should the current therapeutic targets be challenged? *Diabetes Care* 2011; 34:1660.41
  42. Langer O, Levy J, Brustman L, et al. Glycemic control in gestational diabetes mellitus--how tight is tight enough: small for gestational age versus large for gestational age? *Am J Obstet Gynecol* 1989; 161:646.42
  43. Nicholson W, Bolen S, Witkop CT, et al. Benefits and risks of oral diabetes agents compared with insulin in women with gestational diabetes: a systematic review. *Obstet Gynecol* 2009; 113:193.
  44. Nicholson W, Bolen S, Witkop CT, et al. Benefits and risks of oral diabetes agents compared with insulin in women with gestational diabetes: a systematic review. *Obstet Gynecol* 2009; 113:193.
  45. Brown J, Grzeskowiak L, Williamson K, et al. Insulin for the treatment of women with gestational diabetes. *Cochrane Database Syst Rev* 2017; 11:CD012037.
  46. Brown J, Martis R, Hughes B, et al. Oral anti-diabetic pharmacological therapies for the treatment of women with gestational diabetes. *Cochrane Database Syst Rev* 2017; 1:CD011967.
  47. Hod M, Kapur A, Sacks DA, et al. The International Federation of Gynecology and Obstetrics (FIGO) Initiative on gestational diabetes mellitus: A pragmatic guide for diagnosis, management, and care. *Int J Gynaecol Obstet* 2015; 131 Suppl 3:S173.
  48. National Institute for Health and Care Excellence. Diabetes in pregnancy: management of diabetes and its complications from preconception to the postnatal period. National Collaborating Centre for Women's and Children's Health. February 25, 2015; NICE Guideline 3: version 2.1. <https://www.nice.org.uk/guidance/ng3/chapter/1-Recommendations#gestational-diabetes-2> (Accessed on April 24, 2018).
  49. Lewis SB, Wallin JD, Kuzuya H, et al. Circadian variation of serum glucose, C-peptide immunoreactivity and free insulin normal and insulin-treated diabetic pregnant subjects. *Diabetologia* 1976; 12:343.49
  50. Nachum Z, Ben-Shlomo I, Weiner E, Shalev E. Twice daily versus four times daily insulin dose regimens for diabetes in pregnancy: randomised controlled trial. *BMJ* 1999; 319:1223.50
  51. Balsells M, Garcia-Patterson A, Gich I, Corcoy R. Ultrasound-guided compared to conventional treatment in gestational diabetes leads to improved birthweight but more insulin treatment: systematic review and meta-analysis. *Acta Obstet Gynecol Scand* 2014; 93:144.
  52. Rowan JA, Hague WM, Gao W, et al. Metformin versus insulin for the treatment of gestational diabetes. *N Engl J Med* 2008; 358:2003.52
  53. Camelo Castillo W, Boggess K, Stürmer T, et al. Trends in glyburide compared with insulin use for gestational diabetes treatment in the United States, 2000-2011. *Obstet Gynecol* 2014; 123:1177.53
  54. Langer O, Conway DL, Berkus MD, et al. A comparison of glyburide and insulin in women with gestational diabetes mellitus. *N Engl J Med* 2000; 343:1134.54
  55. Casey BM, Lucas MJ, Mcintire DD, Leveno KJ. Pregnancy outcomes in women with gestational diabetes compared with the general obstetric population. *Obstet Gynecol* 1997; 90:869. 55
  56. Bryson CL, Ioannou GN, Rulyak SJ, Critchlow C. Association between gestational diabetes and pregnancy-induced hypertension. *Am J Epidemiol* 2003; 158:1148. 56
  57. Girz BA, Divon MY, Merkatz IR. Sudden fetal death in women with well-controlled, intensively monitored gestational diabetes. *J Perinatol* 1992; 12:229. 57
  58. Langer O, Rodriguez DA, Xenakis EM, et al. Intensified versus conventional management of gestational diabe-

- tes. *Am J Obstet Gynecol* 1994; 170:1036. 58
59. Blank A, Grave GD, Metzger BE. Effects of gestational diabetes on perinatal morbidity reassessed. Report of the International Workshop on Adverse Perinatal Outcomes of Gestational Diabetes Mellitus, December 3-4, 1992. *Diabetes Care* 1995; 18:127. 59
  60. Werner EF, Romano ME, Rouse DJ, et al. Association of Gestational Diabetes Mellitus With Neonatal Respiratory Morbidity. *Obstet Gynecol* 2019; 133:349. 60
  61. Boney CM, Verma A, Tucker R, Vohr BR. Metabolic syndrome in childhood: association with birth weight, maternal obesity, and gestational diabetes mellitus. *Pediatrics* 2005; 115:e290. 61
  62. Carpenter MW. Gestational diabetes, pregnancy hypertension, and late vascular disease. *Diabetes Care* 2007; 30 Suppl 2:S246.62
  63. Rosenstein MG, Cheng YW, Snowden JM, et al. The risk of stillbirth and infant death stratified by gestational age in women with gestational diabetes. *Am J Obstet Gynecol* 2012; 206:309.e1.63
  64. Cheng YW, Chung JH, Block-Kurbisch I, et al. Treatment of gestational diabetes mellitus: glyburide compared to subcutaneous insulin therapy and associated perinatal outcomes. *J Matern Fetal Neonatal Med* 2012; 25:379. 64
  65. Committee on Practice Bulletins—Obstetrics. ACOG Practice Bulletin No. 190: Gestational Diabetes Mellitus. *Obstet Gynecol* 2018; 131:e49. Reaffirmed 2019.
  66. Gabbe SG, Mestman JG, Freeman RK, et al. Management and outcome of class A diabetes mellitus. *Am J Obstet Gynecol* 1977; 127:465.66
  67. Rouse DJ, Owen J, Goldenberg RL, Cliver SP. The effectiveness and costs of elective cesarean delivery for fetal macrosomia diagnosed by ultrasound. *JAMA* 1996; 276:1480.67
  68. Feghali MN, Caritis SN, Catov JM, Scifres CM. Timing of delivery and pregnancy outcomes in women with gestational diabetes. *Am J Obstet Gynecol* 2016; 215:243. e1.68
  69. Spong CY, Mercer BM, D'alton M, et al. Timing of indicated late-preterm and early-term birth. *Obstet Gynecol* 2011; 118:323. 69
  70. Ryan EA, Al-Agha R. Glucose control during labor and delivery. *Curr Diab Rep* 2014; 14:450. 70
  71. Blumer I, Hadar E, Hadden DR, et al. Diabetes and pregnancy: an endocrine society clinical practice guideline. *J Clin Endocrinol Metab* 2013; 98:4227. 71
  72. American Diabetes Association. 14. Management of Diabetes in Pregnancy: Standards of Medical Care in Diabetes-2020. *Diabetes Care* 2020; 43:S183. 72
  73. Tigas S, Sunehag A, Haymond MW. Metabolic adaptation to feeding and fasting during lactation in humans. *J Clin Endocrinol Metab* 2002; 87:302. 73
  74. Kozhimannil KB, Pereira MA, Harlow BL. Association between diabetes and perinatal depression among low-income mothers. *JAMA* 2009; 301:842. 74