Bölüm 6

GEBELİKTE ÜRİNER SİSTEM ENFEKSİYONLARI

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GİRİŞ

Üriner sistem enfeksiyonları (İYE), anemiden sonra hamile kadınlarda görülen en yaygın ikinci patolojidir. Ayrıca hamile kadınlarda en sık görülen enfeksiyondur [(1)]. Üretranın erkeklere göre daha kısa olması, anüsün vajinaya yakın olması ve cinsel aktivite ile patojen mikroorganizmaların daha kolay etkilemesi kadınlarda İYEnin daha sık görülmesine neden olur[(2)]. Üriner sistem enfeksiyonları, gebelikte maternal ve neonatal morbidite ve mortaliteyi arttıran en yaygın bakteriyel enfeksiyon olarak kabul edilmektedir[(3)].

Hamilelikleri sırasında kadınlarda İYE prevalansı % 5-10 civarıdır. Hamile kadınların başvurularının % 5'inin sebebinin İYE olduğu tahmin edilmektedir. Üriner sistem enfeksiyonları tedavi edilmezse, üriner sistemin gebeliğe bağlı adaptif değişiklikleri sonucu sekonder piyelonefrit gelişme riskini artırabilir. Bu da erken doğum, düşük doğum ağırlığı, maternal sistemik enfeksiyon gibi komplikasyonlara neden olabilir [(4)].

Gebelik sırasında idrar yolu enfeksiyonları, asemptomatik bakteriüri (ASB), alt üriner sistem enfeksiyonları (sistit) veya üst üriner sistem enfeksiyonları (piyelonefrit) olarak sınıflandırılabilir.

1. GEBELİKTE ÜRİNER SİSTEMDE GÖRÜLEN DEĞİŞİKLİKLER

Hamilelikte üriner sistemde meydana gelen hormonal ve anatomik değişiklikler kadınları enfeksiyona daha duyarlı hale getirir[(5)]. Bu değişiklikler nedeniyle ASB ve sistit varlığında, piyelonefrit gelişme riskinin arttığı düşünülmektedir [(6-7)]. Gebelik sırasında böbreğin uzunluğu yaklaşık 1 cm ve glomerüler filtrasyon hızı % 30-50 artar [(8)]. Gebeliğin yedinci haftasından itibaren hidroüreteronefroz gözlenebilir [(9)]. Bu durum, üreterlerdeki azalmış peristaltizme, progesteronun kas gevşetici etkilerine ve uterusun giderek artan basısına bağlanabilir [(8,9,10,11)]. Ayrıca hamilelik ilerledikçe mesane üste ve öne doğru yer değiştirir, hipertrofi ve düz kas

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[53]. Nitrofurantoin idrarda terapötik seviyelere ulaşır, ancak dokuda yeterli düzeyde değildir. Bu nedenle piyelonefrit tedavisinde kullanılmamalıdır [10]. Ancak alt üriner sistem enfeksiyonlarında nitrofurantoin, proteus, serratia veya pseudomonasa karşı aktivitesi olmamasına rağmen, E coli, Enterococcus faecalis, Klebsiella spp, Staphylococcus saprophyticus ve Staphylococcus aureus dahil birçok yaygın üropatojenlere karşı sınırlı direnç ve bakterisidal aktivite nedeniyle yararlıdır [54,55]. Yapılan bir çalışmada nitrofurantoin ile anoftalmi, mikroftalmi, atriyal septal kusurlar, yarık dudak ve damak gibi konjenital malformasyonlar arasında bir ilişki olduğu gösterilmiştir [56]. Klindamisin, Staphylococcus ve GBS'nin neden olduğu enfeksiyonların tedavisi için penisiline alerjisi olan hastalarda kullanılsa da Enterococcus ve çoğu aerobik gram-negatif bakteriye karşı etkisizdir [10]. Klindamisin kullanan hastaların yaklaşık %10'unda ishal ve nadiren psödomembranöz kolit görülebilir, ancak yapılan çalışmalarda klindamisini teratojenite ile ilişkilendiren veri yoktur [29,30,54,57,58]. Aminoglikozidler gram negatif basillerin tedavisinde etkilidir. Genellikle ampisilin ile birlikte piyelonefrit tedavisinde önerilir [30,53]. Ancak hem anne hem de fetüste ototoksisite ve nefrotoksisite riski mevcuttur [29.30]. Gentamisin, nispeten üstün güvenlik profili ve düşük maliyeti nedeniyle gerekirse obstetrikte tercih edilen bir aminoglikoziddir [54]. Potansiyel risklere rağmen, gebelikte gentamisin uygulamasından sonra teratojenite, neonatal ototoksisite veya nefrotoksisite bildirilmemiştir ve gentamisin yaygın olarak kullanılmaktadır [30,57].

SONUÇ

İdrar yolu enfeksiyonları gebelikte en sık görülen bakteriyel enfeksiyondur. Aynı zamanda, maternal ve neonatal morbidite ve mortalite riskini arttırır. Bu nedenle ASB, sistit ve piyelonefrit tedavi edilmeli ve hastalar tedaviden sonra antimikrobiyal profilaksiye dikkat edilerek yakından takip edilmelidir.

KAYNAKLAR

1. Habak PJ, Griggs JRP. Urinary Tract Infection In Pregnancy. StatPearls. Treasure Island (FL): StatPearls Publishing Copyright © 2020, StatPearls Publishing LLC.; 2020.
2. Delzell JE, Jr., Lefevre ML. Urinary tract infections during pregnancy. American family physician. 2000;61(3):713-21.
3. Matuszkiewicz-Rowińska J, Małyszko J, Wieliczko M. Urinary tract infections in pregnancy: old and new unresolved diagnostic and therapeutic problems. Archives of medical science : AMS. 2015;11(1):67-77.
4. Haider G, Zehra N, Munir AA, et al. Risk factors of urinary tract infection in pregnancy. J Pak Med Assoc. 2010;60(3):213-6.
5. Gilstrap LC, 3rd, Ramin SM. Urinary tract infections during pregnancy. Obstetrics and gynecology clinics of North America. 2001;28(3):581-91.

6. Sweet RL. Bacteriuria and pyelonephritis during pregnancy. Seminars in perinatology. 1977;1(1):25-40.
7. Kass EH. Bacteriuria and pyelonephritis of pregnancy. Archives of internal medicine. 1960;105:194-8.
8. Harris RE. The significance of eradication of bacteriuria during pregnancy. Obstetrics and gynecology. 1979;53(1):71-3.
9. Screening for asymptomatic bacteriuria in adults: U.S. Preventive Services Task Force reaffirmation recommendation statement. Ann Intern Med. 2008;149(1):43-7.
10. Glaser AP, Schaeffer AJ. Urinary Tract Infection and Bacteriuria in Pregnancy. The Urologic clinics of North America. 2015;42(4):547-60.
11. Mazor-Dray E, Levy A, Schlaeffer F, et al. Maternal urinary tract infection: is it independently associated with adverse pregnancy outcome? The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstet. 2009;22(2):124-8.
12. Hill JB, Sheffield JS, McIntire DD, et al. Acute pyelonephritis in pregnancy. Obstetrics and gynecology. 2005;105(1):18-23.
13. Wing DA, Fassett MJ, Getahun D. Acute pyelonephritis in pregnancy: an 18-year retrospective analysis. American journal of obstetrics and gynecology. 2014;210(3):219.e1-6.
14. Jolley JA, Kim S, Wing DA. Acute pyelonephritis and associated complications during pregnancy in 2006 in US hospitals. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstet. 2012;25(12):2494-8.
15. Archabald KL, Friedman A, Raker CA, et al. Impact of trimester on morbidity of acute pyelonephritis in pregnancy. American journal of obstetrics and gynecology. 2009;201(4):406.e1-4.
16. Gilbert NM, O'brien VP, Hultgren S, et al. Urinary tract infection as a preventable cause of pregnancy complications: opportunities, challenges, and a global call to action. 2013;2(5):59-69.
17. Moore A, Doull M, Grad R, et al. Recommendations on screening for asymptomatic bacteriuria in pregnancy. 2018;190(27):E823-E30.
18. Smaill FM, Vazquez JCJCdosr. Antibiotics for asymptomatic bacteriuria in pregnancy. 2019(11).
19. Yan L, Jin Y, Hang H, Yan BJM. The association between urinary tract infection during pregnancy and preeclampsia: A meta-analysis. 2018;97(36).
20. Angelescu K, Nussbaumer-Streit B, Sieben W, et al. Gartlehner GJBp, childbirth. Benefits and harms of screening for and treatment of asymptomatic bacteriuria in pregnancy: a systematic review. 2016;16(1):1-10.
21. Kalinderi K, Delkos D, Kalinderis M, et al. Urinary tract infection during pregnancy: current concepts on a common multifaceted problem. Journal of Obstetrics and Gynaecology. 2018;38(4):448-53.
22. Sheffield JS, Cunningham FG. Urinary tract infection in women. Obstetrics and gynecology. 2005;106(5 Pt 1):1085-92.
23. Lee AC, Quaiyum MA, Mullany LC, et al. Screening and treatment of maternal genitourinary tract infections in early pregnancy to prevent preterm birth in rural Sylhet, Bangladesh: a cluster randomized trial. BMC pregnancy and childbirth. 2015;15:326.
24. Keelan JA, Blumenstein M, Helliwell RJ, et al. Cytokines, prostaglandins and parturition--a review. Placenta. 2003;24 Suppl A:S33-46.

25. Sheiner E, Mazor-Drey E, Levy A. Asymptomatic bacteriuria during pregnancy. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstet. 2009;22(5):423-7.
26. Jain V, Das V, Agarwal A, et al. Asymptomatic bacteriuria & obstetric outcome following treatment in early versus late pregnancy in north Indian women. The Indian journal of medical research. 2013;137(4):753-8.
27. Mittendorf R, Lain KY, Williams MA, et al. Preeclampsia. A nested, case-control study of risk factors and their interactions. The Journal of reproductive medicine. 1996;41(7):491-6.
28. Farkash E, Weintraub AY, Sergienko R, et al. Acute antepartum pyelonephritis in pregnancy: a critical analysis of risk factors and outcomes. 2012;162(1):24-7.
29. Dashe JS, Gilstrap LC, 3rd. Antibiotic use in pregnancy. Obstetrics and gynecology clinics of North America. 1997;24(3):617-29.
30. Lamont HF, Blogg HJ, Lamont RF. Safety of antimicrobial treatment during pregnancy: a current review of resistance, immunomodulation and teratogenicity. Expert opinion on drug safety. 2014;13(12):1569-81.
31. Keating GM. Fosfomycin trometamol: a review of its use as a single-dose oral treatment for patients with acute lower urinary tract infections and pregnant women with asymptomatic bacteriuria. Drugs. 2013;73(17):1951-66.
32. Roussos N, Karageorgopoulos DE, Samonis G, et al. Clinical significance of the pharmacokinetic and pharmacodynamic characteristics of fosfomycin for the treatment of patients with systemic infections. International journal of antimicrobial agents. 2009;34(6):506-15.
33. Estebanez A, Pascual R, Gil V, et al. Fosfomycin in a single dose versus a 7-day course of amoxicillin-clavulanate for the treatment of asymptomatic bacteriuria during pregnancy. European journal of clinical microbiology & infectious diseases : official publication of the European Society of Clinical Microbiology. 2009;28(12):1457-64.
34. Usta TA, Dogan O, Ates U, et al. Comparison of single-dose and multiple-dose antibiotics for lower urinary tract infection in pregnancy. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics. 2011;114(3):229-33.
35. Falagas ME, Vouloumanou EK, Togias AG, et al. Fosfomycin versus other antibiotics for the treatment of cystitis: a meta-analysis of randomized controlled trials. The Journal of antimicrobial chemotherapy. 2010;65(9):1862-77.
36. Schneeberger C, Geerlings SE, Middleton P, et al. Interventions for preventing recurrent urinary tract infection during pregnancy. The Cochrane database of systematic reviews. 2012;11:Cd009279.
37. Lenke RR, VanDorsten JP, Schifrin BS. Pyelonephritis in pregnancy: a prospective randomized trial to prevent recurrent disease evaluating suppressive therapy with nitrofurantoin and close surveillance. American journal of obstetrics and gynecology. 1983;146(8):953-7.
38. Albert X, Huertas I, Pereiró, II, et al. Antibiotics for preventing recurrent urinary tract infection in non-pregnant women. The Cochrane database of systematic reviews. 2004;2004(3):Cd001209.
39. Pfau A, Sacks TG. Effective prophylaxis for recurrent urinary tract infections during pregnancy. Clin Infect Dis. 1992;14(4):810-4.
40. Wing DA, Rumney PJ, Preslicka CW, et al. Daily cranberry juice for the prevention of asymptomatic bacteriuria in pregnancy: a randomized, controlled pilot study. J Urol. 2008;180(4):1367-72.
41. Abou Heidar NF, Degheili JA, Yacoubian AA, et al. Management of urinary tract infection in women: A practical approach for everyday practice. 2019;11(4):339.

42. Thomsen AC, Mørup L, Hansen KB. Antibiotic elimination of group-B streptococci in urine in prevention of preterm labour. Lancet (London, England). 1987;1(8533):591-3.
43. Verani JR, McGee L, Schrag SJJM, Mortality Weekly Report RGfC, Recommendations, Reports. Prevention of perinatal group B streptococcal disease. 2010;59(RR10):1-32.
44. Vazquez JC, Abalos E. Treatments for symptomatic urinary tract infections during pregnancy. The Cochrane database of systematic reviews. 2011;2011(1):Cd002256.
45. Wing DA, Park AS, Debuque L, et al. Limited clinical utility of blood and urine cultures in the treatment of acute pyelonephritis during pregnancy. American journal of obstetrics and gynecology. 2000;182(6):1437-40.
46. Sharma AK, Mis FJ, Vo TD, et al. Percutaneous nephrostomy tube placement in pregnancy: Care of the mother and unborn child. 2016;35(2):85-96.
47. Obstetrics CoOPJ, gynecology. Committee Opinion No. 717: sulfonamides, nitrofurantoin, and risk of birth defects. 2017;130(3):e150-e2.
48. Macejko AM, Schaeffer AJ. Asymptomatic bacteriuria and symptomatic urinary tract infections during pregnancy. The Urologic clinics of North America. 2007;34(1):35-42.
49. Elder H, Santamarina B, Smith S, et al. gynecology. The natural history of asymptomatic bacteriuria during pregnancy: the effect of tetracycline on the clinical course and the outcome of pregnancy. 1971;111(3):441-62.
50. MacLean AB. Urinary tract infection in pregnancy. International journal of antimicrobial agents. 2001;17(4):273-6; discussion 6-7.
51. Fan H, Li L, Wijlaars L, et al. Associations between use of macrolide antibiotics during pregnancy and adverse child outcomes: A systematic review and meta-analysis. PLoS One. 2019;14(2):e0212212.
52. Andersen JT, Petersen M, Jimenez-Solem E, et al. Trimethoprim use in early pregnancy and the risk of miscarriage: a register-based nationwide cohort study. Epidemiology and infection. 2013;141(8):1749-55.
53. Hernández-Díaz S, Werler MM, Walker AM, et al. Folic acid antagonists during pregnancy and the risk of birth defects. The New England journal of medicine. 2000;343(22):1608-14.
54. Duff P. Antibiotic selection in obstetrics: making cost-effective choices. Clinical obstetrics and gynecology. 2002;45(1):59-72.
55. Christensen B. Which antibiotics are appropriate for treating bacteriuria in pregnancy? The Journal of antimicrobial chemotherapy. 2000;46 Suppl 1:29-34; discussion 63-5.
56. Crider KS, Cleves MA, Reefhuis J, et al. Antibacterial medication use during pregnancy and risk of birth defects: National Birth Defects Prevention Study. Archives of pediatrics & adolescent medicine. 2009;163(11):978-85.
57. Nahum GG, Uhl K, Kennedy DL. Antibiotic use in pregnancy and lactation: what is and is not known about teratogenic and toxic risks. Obstetrics and gynecology. 2006;107(5):1120-38.
58. Czeizel AE, Rockenbauer M, Sørensen HT, et al. A teratological study of lincosamides. Scandinavian journal of infectious diseases. 2000;32(5):579-80.