

# BÖLÜM 14

## GEBELİK VE MEME KANSERİ

Özge KANDEMİR GÜRSEL<sup>1</sup>

### GİRİŞ

Gebelik, kendi başına tıbbi açıdan anne ve fetüs sağlığının birlikte ele alınmasını gerektiren özel bir dönemi kapsamaktadır. Hayatında ve bedeninde önemli değişiklikler yaşayan anne adayının, meme kanseri teşhisi ile ortaya çıkan kendisi ve bebeği için duyduğu endişe, tedavi kararında zorlayıcı bir süreç ile birlikte etik ve tıbbi açıdan zorlukları beraberinde getirmektedir.

Gebelik yaşının son dönemlerde tüm dünyada, daha ileri yaşlara doğru kayması nedeniyle, gebelik dönemi de meme kanseri insidansının arttığı yaşlara yaklaşmaktadır. Gebelikle ilişkili meme kanseri (GİMİK) gebelik sırasında, doğumdan sonraki ilk bir yılda veya laktasyon döneminde görülen meme kanserini tanımlamak için kullanılır.

Gebelikle birlikte eşzamanlı görülen meme kanseri farklı evrelerde, farklı immunhistokimyasal özellikler içermesi ve gebeliğin farklı trimester aralıklarında ortaya çıkması nedeniyle standart tedavi yaklaşımlarını uygulamak mümkün değildir. Tedavi seçiminde anne sağlığı göz önünde bulundurularak kanser tedavisi planlanırken; fetüs sağlığının minimal risk içerecek şekilde aynı anda değerlendirilmesini içeren yaklaşımlar önem kazanmaktadır. En uygun tedavi seçeneğini uygularken, gebenin ve fetüsün yakın izlemi ile doğum zamanlamasını da göz önünde bulundurmak gereklidir. Nadir görülen bu zorlu süreç sırasında farklı disiplinlerin tedavi protokollerinde birbirleriyle iletişim halinde olması ile bireyselleştirilmiş tedavi düzenlenmesi yapılmalıdır.

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**Tablo 4 :Farklı trimester dönemlerinde tedavi seçenekleri**

Tanısal testler	İlk trimester	İkinci trimester	Üçüncü trimester
Meme cerrahisi	Uygulanabilir	Uygulanabilir	Uygulanabilir
SLNB	Uygulanabilir	Uygulanabilir	Uygulanabilir
Radyoterapi	Uygulanamaz	Uygulanamaz	Uygulanamaz
Kemoterapi	Uygulanamaz	Uygulanabilir	Uygulanabilir
Anti-Her2 tedavi	Uygulanamaz	Uygulanamaz	Uygulanamaz
Endokrin tedavi	Uygulanamaz	Uygulanamaz	Uygulanamaz
İmmünoterapi	Uygulanamaz	Uygulanamaz	Uygulanamaz

## SONUÇ

GİMİK tanıdan tedaviye ve doğumun gerçekleşmesi aşamasına dek farklı tedavi modalitelerini ekip olarak çalışmasını gerektiren özel bir hastalık grubudur. Tanı ve evreleme sırasında yöntemlerin seçilmesi, tedavi sırasında oluşabilecek komplikasyonlar ve riskler konusunda hastanın detaylı ve net olarak bilgilendirilmesi önemlidir.

Gebenin fiziksel ve duygusal sağlık bütünlüğünü korurken, fetüsün sağlığını gözeterek tedavi planı, klinik parametreler, gebelik haftası, tümörün evresi, tümör özellikleri ve hasta tercihleri göz önünde bulundurularak şekillendirilirken, meme kanserini en etkin biçimde tedavi edilmesi mümkündür.

## KAYNAKLAR

1. Siegel RL, Miller KD, Fuchs HE, et al. Cancer statistics, 2021. *CA Cancer J Clin.* 2021; 71:7-33.
2. Belot A, Grosclaude P, Bossart N, et al. Incidence et mortalité des cancers en France durant la période 1980-2005. *Rev Epidemiol Sante Publique* 2008;56:159-175.
3. Hartman EK, Eslick GD. The prognosis of women diagnosed with breastcancer before, during and after pregnancy: a meta-analysis. *Breast CancerRes Treat.* 2016;160(2):347-360.
4. Ring AE, Smith IE, Ellis PA. Breast cancer and pregnancy. *Ann Oncol* 2005;16:1855-60
5. Parazzini, F.; Franchi, M.; Tavani, A, et al.Frequency of pregnancy related cancer: A population based linkage study in Lombardy, Italy. *Int. J. Gynecol. Cancer* 2017;27, 613-619.
6. Ahmad A. Breast cancer statistics: recent trends. *Adv Exp Med Biol.* 2019;1152:1-7.
7. Knabben L, Mueller MD. Breast cancer and pregnancy. *Horm Mol Biol Clin Investig.* 2017;32(1)
8. Balasch J, Gratacós E (2012) Delayed childbearing: effects on fertility and the outcome of pregnancy. *Curr Opin Obstet Gynecol* 24(3):187-193
9. Loibl S, Han SN, von Minckwitz G, et al. Treatment of breast cancer during pregnancy: an observational study.*Lancet Oncol*,2012;13(9):887-896.
10. Navrozoglou I, Vrekoussis T, Kontostolis E, et al. Breast cancer during pregnancy: a mini review. *Eur J Surg Oncol* 2008;34:837-43.
11. Albrektsen G, Heuch I, Hansen S, et al. Breast cancer risk by age at birth, time since birth and time intervals between births: exploring interaction effects. *Br J Cancer.* 2005;92(1):167-175.

12. Borges, V.F.; Schedin, P.J. Pregnancy-associated breast cancer: An entity needing refinement of the definition. *Cancer* 2012;118, 3226–3228.
13. Bonnier P, Romain S, Dilhuydy JM, et al. Influence of pregnancy on the outcome of breast cancer: a case-control study. Societe Francaise de Senologie et de Pathologie Mammaire Study Group. *Int J Cancer* 1997;72:720–7.
14. Aziz S, Pervez S, Khan S, et al. Case control study of novel prognostic markers and disease outcome in pregnancy/lactation-associated breast carcinoma. *Pathol Res Pract* 2003;199:15–21
15. Pavlidis N, Pentheroudakis G. The pregnant mother with breast cancer: diagnostic and therapeutic management. *Cancer Treat Rev* 2005;31:439–447
16. Ishida T, Yokoe T, Kasumi F, et al. Clinicopathologic characteristics and prognosis of breast cancer patients associated with pregnancy and lactation: analysis of case-control study in Japan. *Jpn J Cancer Res* 1992;83:1143–9.
17. Middleton LP, Amin M, Gwyn K, Theriault R, Sahin A. Breast carcinoma in pregnant women: assessment of clinicopathologic and immunohistochemical features. *Cancer* 2003;98:1055–60.
18. Elledge RM, Ciocca DR, Langone G, et al. Estrogen receptor, progesterone receptor, and HER-2/neu protein in breast cancers from pregnant patients. *Cancer* 1993;71:2499–506.
19. Baselga J, Perez EA, Pienkowski T, et al. Adjuvant trastuzumab: a milestone in the treatment of HER-2-positive early breast cancer. *Oncologist* 2006;11(Suppl. 1):4–12.
20. Bae SY, Kim SJ, Lee J, Lee ES, Kim E-K, Park HY, et al. Clinical subtypes and prognosis of pregnancy-associated breast cancer: results from the Korean Breast Cancer Society Registry database. *Breast Cancer Res Treat.* 2018;172(1):113–21.
21. Han BY, Li XG, Zhao HY, et al. Clinical features and survival of pregnancy-associated breast cancer: a retrospective study of 203 cases in China. *BMC Cancer.* 2020;20(1):244.
22. O'Sullivan CC, Irshad S, Wang Z, et al. Clinico-pathologic features, treatment and outcomes of breast cancer during pregnancy or the post-partum period. *Breast Cancer Res Treat.* 2020;180(3):695–706.
23. Couch FJ, Hart SN, Sharma P, et al. Inherited mutations in 17 breast cancer susceptibility genes among a large triple-negative breast cancer cohort unselected for family history of breast cancer. *J Clin Oncol.* 2015; 33(4):304–311
24. Korakiti AM, Moutafi M, Zografos E, et al. The genomic profile of pregnancy-associated breast cancer: a systematic review. *Front Oncol.* 2020;10:1773
25. Ring A. Breast cancer and pregnancy. *Breast.* 2007;16 Suppl 2: 155–158.
26. Suleman K, Osmani AH, Al Hashem H, et al. Behavior and outcomes of pregnancy associated breast cancer. *Asian Pac J Cancer Prev.* 2019;20(1):135–8.
27. Puchar A, Despierres M, Boudy AS, et al. Prognosis of triple-negative breast cancer associated with pregnancy: A propensity score-matched analysis from the French CALG (Cancer Associé à la Grossesse) network. *Breast.* 2022 Feb;61:168–174.
28. Amant F, von Minckwitz G, Han SN, et al. Prognosis of women with primary breast cancer diagnosed during pregnancy: results from an international collaborative study. *J Clin Oncol.* 2013 Jul 10;31(20):2532–9
29. Choi M, Han J, Yang BR, et al. Prognostic impact of pregnancy in Korean patients with breast cancer. *Oncologist.* 2019; 24:e1268–e1276
30. Iqbal J, Amir E, Rochon PA, et al. Association of the timing of pregnancy with survival in women with breast cancer. *JAMA Oncol.* 2017; 3:659–665.
31. Ploquin A, Pistilli B, Tresch E, et al. 5-year overall survival after early breast cancer diagnosed during pregnancy: A retrospective case-control multicentre French study. *Eur J Cancer.* 2018; 95:30–37.
32. Shao C, Yu Z, Xiao J, et al. Prognosis of pregnancy-associated breast cancer: A metaanalysis. *BMC Cancer.* 2020; 20:746.
33. Azim HA Jr, Santoro L, Russell-Edu W, et al. Prognosis of pregnancy-associated breast cancer: a meta-analysis of 30 studies. *Cancer Treat Rev* 2012 ;38(7):834–84

34. Weisz B, Schiff E, Lishner M. Cancer in pregnancy: maternal and fetal implications. *Hum Reprod Update* 2001;7:384-93z
35. Vinatier E, Merlot B, Poncelet E, et al. Breast cancer during pregnancy. *Eur J Obstet Gynecol Reprod Biol.* 2009 Nov;147(1):9-14.
36. Woo JC, Yu T and Hurd TC: Breast cancer in pregnancy. A literature review. *Arch Surg* 2003;138: 91-98.
37. Aebi S, Loibl S. Breast cancer during pregnancy: medical therapy and prognosis. *Recent results Cancer Res* 2008;178:45-55
38. Cordoba O, Llurba E, Saura C, et al. Multidisciplinary approach to breast cancer diagnosed during pregnancy: maternal and neonatal outcomes. *Breast.* 2013;22:515-9.
39. American College of Obstetricians and Gynecologists' Committee on Obstetric Practice. Committee Opinion No. 723: Guidelines for Diagnostic Imaging During Pregnancy and Lactation. *Obstet Gynecol.* 2017 Oct;130(4):e210-e216.
40. ICRP, International Commission on Radiological Protection . Biological effects after prenatal irradiation (embryo and fetus): ICRP publication 90. *Ann. ICRP* 33, 1-206 (2003)
41. Zagouri F, Dimitrakakis C, Marinopoulos S, et al. Cancer in pregnancy: disentangling treatment modalities. *ESMO Open.* 2016 May 4;1(3):e000016.
42. Yang WT, Dryden MJ, Gwyn K, Whitman GJ, Theriault R. Imaging of breast cancer diagnosed and treated with chemotherapy during pregnancy. *Radiology* 2006;239:52-60.
43. Rovera F, Frattini F, Coglitore A, et al. Breast cancer in pregnancy. *Breast J.* 2010 Sep-Oct;16 Suppl 1:S22-5.
44. Kanal E, Barkovich AJ, Bell C, et al. ACR blue ribbon panel on MR safety. ACR guidance document for safe MR practices: 2007. *AJR Am J Roentgenol.* 2007;188(6):1447-74.
45. Nicklas AH, Baker ME. Imaging strategies in the pregnant cancer patient., *Semin Oncol* 2000;27:623-32
46. Vandecaveye V, Amant F, Lecouvet F, et al. Imaging modalities in pregnant cancer patients. *Int J Gynecol Cancer.* 2021 Mar;31(3):423-431.
47. Mattsson S, Leide-Svegborn S, Andersson M. Xray and molecular imaging during pregnancy and breastfeeding- when should be worried? *Radiat Prot Dosimetry.* 2021 Oct 12;195(3-4):339-348
48. Vashi R, Hooler R, Butler R, et al. Breast imaging of the pregnant and lactating patient: imaging modalities and pregnancy-associated breast cancer .*Am J Roentgenol.* 2013 Feb;200(2):321-8
49. Paris I, Di Giorgio D, Carbognin L, et al. Pregnancy-associated breast cancer: A multidisciplinary approach. *Clin Breast Cancer.* 2021; 21:120-127.
50. Loibl S, Schmidt A, Gentilini O, et al. Breast cancer diagnosed during pregnancy: adapting recent advances in breast cancer care for pregnant patients. *JAMA Oncol.*2015;1(8):1145-53.
51. Keleher AJ, Theriault RL, Gwyn KM, et al. Multidisciplinary management of breast cancer concurrent with pregnancy. *J Am Coll Surg* 2002;194:54-64.
52. Toesca A, Gentilini O, Peccatori F, et al. Locoregional treatment of breast cancer during pregnancy. *Gynecol Surg.*2014;11(4):279-84.
53. Gentilini O, Cremonesi M, Toesca A, et al. Sentinel lymph node biopsy in pregnant patients with breast cancer. *Eur J Nucl Med Mol Imaging.* 2010;37(1):78-83.
54. Gropper AB, Calvillo KZ, Dominici L, et al. Sentinel lymph node biopsy in pregnant women with breast cancer. *Ann Surg Oncol.* 2014;21(8):2506-11.
55. Khera SY, Kiluk JV, Hasson DM, et al. Pregnancy-associated breast cancer patients can safely undergo lymphatic mapping. *Breast J* 2008;14:250-4
56. Lohsiriwat V, Peccatori FA, Martella S et al. Immediate breast reconstruction with expander in pregnant breast cancer patients. *Breast* 2013;22(5):657-660
57. Caragacianu DL, Mayer EL, Chun YS, et al. Immediate breast reconstruction following mastectomy in pregnant women with breast cancer. *J Surg Oncol.* 2016;114(2):140-3.
58. Eskandari A, Alipour S. Aspects of anesthesia for breast surgery during pregnancy. *Adv Exp*

- Med Biol. 2020;1252:107-114.
59. Stovall M., Blackwell C., Cundiff J, et al. Fetal dose from radiotherapy with photon beams: Report of AAPM Radiation Therapy Committee Task Group No 36. *Med. Phys.* 1995;22:63–82.
  60. Peccatori FA, Azim HA Jr, Orecchia R, et al. Cancer, pregnancy and fertility: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Ann Oncol.* 2013;24(Suppl 6):160–70.
  61. Stewart FA, Akleyev AV, Hauer-Jensen M, et al. ICRP publication 118: ICRP statement on tissue reactions and early and late effects of radiation in normal tissues and organs—threshold doses for tissue reactions in a radiation protection context. *Annals of the ICRP.* 2012;41(1-2):1-322.
  62. Kal HB, Struikmans H. Breast cancer and pregnancy. *Breast* 2008;17:7.
  63. Otake M, Schull WJ. Radiation-related brain damage and growth retardation among the prenatally exposed atomic bomb survivors. *Int J Radiat Biol* 1998; 74: 159–71.
  64. Pentheroudakis G, Pavlidis N. Cancer and pregnancy: poena magna, not anymore. *Eur J Cancer.* 2006 Jan;42(2):126-40.
  65. Kal HB, Struikmans H . Radiotherapy during pregnancy: fact and fiction. *Lancet Oncol* 2005;6(5):328–333
  66. Owrangi AM, Roberts DA, Covington EL, et al. Revisiting fetal dose during radiation therapy: evaluating treatment techniques and a custom shield. *J. Appl. Clin. Med. Phys.* 2016;17 (5), 34–46
  67. Galimberti V, Ciocca M, Leonardi MC, et al. Is electron beam intraoperative radiotherapy (ELIOT) safe in pregnant women with early breast cancer? In vivo dosimetry to assess fetal dose. *Ann. Surg. Oncol.* 2009; 16 (1), 100–105.
  68. Mahdavi SR, Tutuni M, Farhood B, et al. Measurement of peripheral dose to the pelvic region and the associated risk for cancer development after breast intraoperative electron radiation therapy. *J Radiol Prot.* 2019 Mar;39(1):278-291.
  69. Candela-Juan C, Gimeno-Olmos J, Pujades MC, et al. Fetal dose measurements and shielding efficiency assessment in a custom setup of (192)Ir brachytherapy for a pregnant woman with breast cancer. *Phys Med.* 2015 May;31(3):286-92.
  70. Suwanbut P, Liamsuwan T, Nantajit D, et al. Assessment of Fetal Dose and Health Effect to the Fetus from Breast Cancer Radiotherapy during Pregnancy .*Life (Basel).* 2022 Jan 7;12(1):84.
  71. Mazonakis M, Varveris H., Damilakis J, et al. Radiation dose to conceptus resulting from tangential breast irradiation. *Int. J. Radiat. Oncol. Biol. Phys.* 2003; 55 (2), 386–391.
  72. Greskovich JF Jr, Macklis RM. Radiation therapy in pregnancy: risk calculation and risk minimization. *Semin Oncol.* 2000;27(6):633–45.
  73. Alfasi A, Ben-Aharon I: Breast Cancer during Pregnancy-Current Paradigms, Paths to Explore. *Cancers (Basel).* 2019; 11(11): 1669
  74. Amant F, Deckers S, Van Calsteren K, et al. Breast cancer in pregnancy: recommendations of an international consensus meeting. *Eur J Cancer.* 2010;46(18):3158–68.
  75. Chen Z, King W, Pearcey R, et al. The relationship between waiting time for radiotherapy and clinical outcomes: a systematic review of the literature. *Radiother Oncol.* 2008;87(1):3–16.
  76. Mazzola R, Corradini S, Eidemüller M, et al. Modern radiotherapy in cancer treatment during pregnancy. *Crit Rev Oncol Hematol.* 2019 Apr;136:13-19.
  77. Luis SA, Christie DR, Kaminski A, et al. Pregnancy and radiotherapy: management options for minimising risk, case series and comprehensive literature review. *J Med Imaging Radiat Oncol.* 2009;53(6):559–568.
  78. Eedarapalli P, Jain S. Breast cancer in pregnancy. *J Obstet Gynecol .* 2006; 26:1–4
  79. Cardonick E, Iacobucci A. Use of chemotherapy during human pregnancy. *Lancet Oncol.* 2004;5(5):283–91.
  80. Ring AE, Smith IE, Jones A, et al. Chemotherapy for breast cancer during pregnancy: an 18-year experience from five London teaching hospitals. *J Clin Oncol* 2005;23:4192–7.
  81. Hahn KM, Johnson PH, Gordon N, et al. Treatment of pregnant breast cancer patients and out-

comes of children exposed to chemotherapy in utero. *Cancer* 2006;107:1219–26

82. Potluri V, Lewis D, Burton GV. Chemotherapy with taxanes in breast cancer during pregnancy: case report and review of the literature. *Clin Breast Cancer* 2006; 7: 167-70.
83. Van Calsteren K, Berteloot P, Hanssens M, et al. In utero exposure to chemotherapy: effect on cardiac and neurologic outcome. *J Clin Oncol* 2006;24(12):e16–7
84. Aviles A, Neri N. Hematological malignancies and pregnancy: a final report of 84 children who received chemotherapy in utero. *Clin Lymphoma* 2001;2(3):173–7
85. Andrikopoulou A, Apostolidou K, Chatzinikolaou S, et al. Trastuzumab administration during pregnancy: an update. *BMC Cancer*. 2021 Apr 26;21(1):463
86. Yildirim N, Bahceci A. Use of pertuzumab and trastuzumab during pregnancy. *Anti-Cancer Drugs*. 2018;29(8):810–813.