



Breast Cancer and Pregnancy: A Challenge Between Creation and Destruction

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Breast cancer remains the most common malignancy in women worldwide, and the most diagnosed cancer in patients of reproductive age. In the era of major advances in the molecular classification and the treatment of early breast cancer, patients have an improved survival irrespective of their ages. Thus, women are prone to regain a normal regular lifestyle including the procreation. Nevertheless, prior pregnancies and breastfeeding are among the risk factors of developing a breast malignancy. Breast cancer diagnosed during pregnancy continues to be a challenge of treating and saving the mother without affecting the fetus and the delivery. Nowadays, there have been more publications discussing this topic, but all the recommendations are still of limited evidence.

Breast cancer is also the most common diagnosed malignancy during pregnancy despite the fact that it is rare in this category. However, it is increasing in incidence especially that most women are postponing their pregnancies to a later age. There was a wrong idea that breast cancer occurring during pregnancy is more aggressive and is associated with a higher mortality rate as well as an increased risk of relapse and disease progression. Besides, these results reported in the previous meta-analyses concerned mainly women with delayed diagnosis, presenting with a locally advanced disease; two entities that are associated with a poor prognosis outside the pregnant population. Therefore, when a multidisciplinary team (the medical oncologist, the surgeon and the obstetrician) is involved in the management of these tumors, good results are achieved with better than previously reported outcomes. There are many concerns to be taken into consideration, mainly when the clinicians decide to apply the known standard of care in managing breast cancer consisting of surgery, radiation therapy, chemotherapy, endocrine therapy and targeted anti-Her2 therapy. According to the data published by Loibl S., *et al*, Hartman EK., *et al*. and Pecatori., *et al*, surgery can be performed during all trimesters without any added risks. Likewise, the lymphoscintigraphy with technetium-99 used in the sentinel node technique appears to be safe, too. This is not the case for radiation therapy that should be postponed and not given during pregnancy. Concerning the systemic cytotoxic treatment, many controversies exist. Chemotherapy is absolutely

contraindicated in the first trimester as it is associated with fetal malformations. It must be reported to the second trimester unless there is a risk on the mother with delaying the treatment, and consequently pregnancy termination should be discussed: locally advanced and inflammatory breast cancers. Conversely, chemotherapy can be used without any risk during the second and third trimesters, but it shouldn't be administered beyond the 34th week of gestation because there is a possibility of spontaneous delivery. Anthracycline and cyclophosphamide were the most used and are the preferred chemotherapy regimen with the safest reported results (knowing that the addition of 5-fluoro-uracil didn't bring any survival advantage). In the same perspective, taxanes can also be given, preferably paclitaxel. The endocrine therapy with Tamoxifen and the anti-Her2 therapy must be avoided and postponed until after the delivery because both of them is associated with increased congenital malformations, pre-term deliveries and fetal morbidity and mortality.

To conclude, oncologists are going to see more frequently breast cancers during pregnancy with the new lifestyle where childbearing age is being delayed. For many decades, malignancy and pregnancy were two opposed issues that used to be correlated with a dismal prognosis. Despite the limited guidelines, the need of further research and the difficulty of undergoing prospective studies in this field, the prognosis of pregnant women developing breast cancer has drastically changed: similar survival outcomes as patients diagnosed outside the pregnancy. So, a correct management may "safely save" both the mother and her child, keeping women able to create a lot more than the breast cancer can destroy.

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