Screening for Breast Cancer in High Risk Women during Pregnancy & Lactation
SCREENING FOR BREAST CANCER IN HIGH-RISK WOMEN DURING PREGNANCY AND LACTATION

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Version Control

Managing women at higher risk of developing breast cancer in the NHSBSP

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**Interim Amendments**

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1. Introduction

The incidence of breast cancer during pregnancy is estimated to be 1.3-2.4/10,000 live births, which equates to 2-3% of total breast cancers. Incidence is expected to increase as more women delay childbearing for socioeconomic reasons. BRACA 1 and BRACA 2 women are over-represented in pregnancy-associated breast cancer cases, representing 12.4% of all instances, against a figure of 4.25% for a control group.

2. Symptomatic Cancers Presenting During Pregnancy

Symptomatic cancers presenting during pregnancy are larger and more advanced than those found in non-pregnant women of a similar age. The average tumour size at diagnosis is 3.5 cm, against 2 cm in the non-pregnant patient. A greater number of pregnant breast cancer patients are lymph node positive than their non-pregnant counterparts. However, survival rates in pregnant women are no different statistically from those of non-pregnant women, and the poor prognosis for cases in the former group appears to be due to late presentation, rather than pregnancy itself.

The most common symptom of breast cancer during pregnancy is a lump. Less common symptoms are breast oedema and an inflammatory picture, and occasionally a bloodstained nipple discharge is reported (though it should be remembered that 15% of asymptomatic lactating women test positive for blood in their milk).

From the above, we conclude that women with a high-risk family history, particularly those who are BRACA gene carriers, continue to be at risk of breast cancer during pregnancy, and that cancers that present symptomatically have a poor prognosis.

3. Screening and Pregnancy

Continuation of screening during pregnancy and lactation is therefore desirable. However, forming a more detailed strategy is problematic. No evidence has been published assessing the effectiveness of breast screening for pregnant women, so reports of symptomatic cancer diagnoses during pregnancy must instead be relied upon. These suggest that:

- The usual screening and diagnostic methods (MRI and mammography) are less effective during pregnancy and lactation. During pregnancy, breast weight doubles, and intense cellular proliferative activity is observed, mainly in the second and third trimester. This results in a high level of background contrast uptake when MRI is used, and increased density of the breast where mammography is employed.

- For mammography, it is well established that the radiation risk to the fetus is negligible, with the fetal dose estimated to be 0.05 microGy. The radiation dose to the breast will, however, be significantly raised, and the effects of this on this young, potentially radiosensitive population should not be dismissed.

- Benign microcalcifications are common in pregnancy, and may be punctuate or linear. They can be caused by secretory or ductal hyperplasia, and may closely resemble malignancy.
• There has been no formal evaluation of the performance of mammography in pregnant woman, and data for its use in symptomatic cancer cases, usually after a mass has been detected by ultrasound, are mixed. Screening mammography during pregnancy is therefore not expected to result in an adequate cancer detection rate.

• MRI may be useful in the first trimester, but there are safety concerns around its effects on the fetus, due to the heating effect, noise, and the potential toxicity of gadolinium. However, the view of the European Society of Radiology is that the use of gadolinium-based contrast during pregnancy is probably safe. Later in pregnancy, the capacity of MRI scans to detect small tumours will fall due to intense background enhancement. Tumour detection in symptomatic cases is variable, even where large masses are detected by ultrasound. The collective expert opinion from MRI specialists contacted in the North of England and Scotland on MRI screening during pregnancy is universally negative.

• Ultrasound screening during pregnancy should not be standard practice. It is time-consuming, operator-dependant, and has a high false positive rate. Benign lesions are common, with lactational adenomas, and enlarging fibroadenomas forming a feature of many scans. The increase in reflectivity during pregnancy and lactation would also impede detection of small lesions.

• It is essential to perform a core biopsy on any suspicious lesion in the pregnant breast, as the associated hyperplastic changes make cytology unreliable. However, it should be borne in mind that there is an increased risk of infection during late pregnancy and lactation.

• Involution of the breast occurs over a period of about 3 months after lactation ceases, and normal screening methods can be resumed thereafter.
4. References


