

# Psychological stress in patients with breast cancer

Breast cancer is the most common female cancer, affecting one in eight women. Although many risk factors have been associated with the progression of the disease, the effects of psychological stress are just beginning to be recognised. Dr Melanie Flint is leading research that will help to determine the role that stress hormones play in patients' responses to treatment.

Triple negative breast cancer (TNBC) accounts for approximately 20 per cent of all subtypes of breast cancer. Patients with TNBC are treated with standard chemotherapy treatments, and these patients exhibit shorter disease-free survival, a higher rate of relapse and can develop resistance to standard therapies. Dr Flint's research examines the impact of stress hormones on the progression of TNBC and patients' responses to drug treatment. Stress hormones are highly potent and can interact with almost every cell in the body (including normal, cancer and immune cells). Dr Flint's research has shown that DNA can be damaged as a result of this interaction leading to cell transformation. A diagnosis of breast cancer is a cause of a great deal of stress, which is in itself a significant reason for stress management to be considered early on.

Dr Flint works with women who have recovered from breast cancer/TNBC and has used this to inform the direction of her research. The period of most stress is different for each woman; it may be from the moment of suspicion of breast cancer to the diagnosis, or following diagnosis. Patients experience stress for a variety of reasons: through knowledge that they are high risk, enduring multiple biopsies, indirect stress of family members, as well as fear of pain, sickness and potential end of life. Some patients seek stress interventions such as exercise and positive reinforcement from medically trained individuals.

Each of the women Dr Flint worked with stated that stress was a major factor during their cancer history, and that they felt stress could play a role even in tumour progression and treatment. Dr Flint's group is also examining the impact of stress hormones in tumour tissue from women with mutations in Breast Cancer (BRCA) genes (women who are at high risk of developing breast cancer). BRCA proteins help repair damaged DNA, and women with these mutations often develop breast cancer at a younger age and have higher stress levels. Patients with breast cancer considered investigations into mutations in Breast Cancer 1 (BRCA1) genes would be critical, due to the added stress of thinking that they could pass on their genetic propensity for the disease to family members. Further, the survivors welcomed discussions of stress with their physician and stress management interventions if offered.

Determining the effects of stress on the efficacy of chemotherapy will have an impact on the potential utility of pharmacological interventions (for example, beta-blockers) or psychological interventions (for example, mindfulness-based stress reduction) and on the correct time point for administration in the disease trajectory for greatest therapeutic effect. The research will impact patients and clinicians, through recognition that stress is a contributing factor for drug resistance in the treatment of breast cancer.

“It's very exciting to work on a (series) of projects that combine the expertise of laboratory based scientists with that of psycho-oncologists in an innovative area of research likely to produce tangible benefits for patients receiving cancer treatments.”

Valerie Jenkins, SHORE-C, Sussex Health Outcomes, Research and Education Group



**80%**  
RISK OF DEVELOPING  
BREAST CANCER IN YOUR  
LIFETIME IF YOU HAVE A  
BRCA1 MUTATION