NEW INSIGHTS INTO NEUROPATHIC PAIN IN BREAST CANCER

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Speakers:
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Symposium Abstract:
Breast cancer is the most commonly diagnosed cancer among Canadian women. With increased focus on screening and advances in treatments, survival rates have improved dramatically. Unfortunately, many breast cancer survivors may be left with lasting treatment-related pain long after their cancer has been resected. Neuropathic pain may be especially common and it is associated with substantial disability and distress. It may also be particularly refractory to pharmacologic management. There remain many gaps in our knowledge about its development and which measurement tools should be used to assess neuropathic pain in this population. Thus, a better understanding of neuropathic pain in breast cancer, including novel prevention and interdisciplinary management strategies, is critical. The overall aim of this symposium is to present new research into the prevention, development, and management of neuropathic pain in breast cancer.

Learning Objectives:
1. To examine whether perioperative anesthetic management for breast cancer surgery can play a role in preventing the development of neuropathic pain.
2. To describe what we know and what we need to know about age-related patterns in the development of chemotherapy-induced peripheral neuropathy in women with breast cancer.
3. To learn about the current state of knowledge on the inter-disciplinary management of chronic neuropathic pain among breast cancer survivors as well as proposed novel approaches.

**Integrating nerve blocks into the anesthetic management for breast cancer surgery: The potential protective effect of the paravertebral block against the development of neuropathic pain.**
Faraj Abdallah, MD, Scientist, the Li Ka Shing Knowledge Institute Assistant Professor, Department of Anesthesia, University of Toronto Staff Anesthesiologist, St. Michael's Hospital

Chronic pain lasting at least six months affects 45% of women who undergo breast cancer surgery, a high proportion considering that this cancer affects one in nine Canadian women during their lifetime, approximately 24,000/year. The burden of this pain is significant: it is disabling, disrupts functionality, leading to deterioration of the quality of life. Accurately diagnosing chronic pain following breast cancer surgery is crucial to evaluating the success of interventions to prevent this pain. The challenge lies in choosing a tool that incorporates sensory testing as part of the diagnostic criteria, as chronic pain after breast surgery is commonly accompanied by sensory disturbances (loss of sensation, tingling, and exaggerated sensation). These affect the breast, side of the chest, shoulder, and arm. This presentation will describe a recent validation study that demonstrated the high sensitivity and specificity of the DN4 screening tool in diagnosing chronic pain following breast surgery. The presentation will also describe findings from a prospective trial using the DN4 tool showing that the preoperative paravertebral block of the nerves innervating the breast reduces the risk of developing neuropathic pain at 6 months after mastectomy. Although very promising, evidence to date, including our work, is characterized by important design and methodological limitations, precluding recommendations to integrate the paravertebral block into the anesthetic care standard. The new evidence and the recognized limitations set the stage for future definitive studies exploring the protective effect of the paravertebral block against the development of neuropathic pain following breast cancer surgery.

Age-related patterns in the development and impact of chemotherapy-induced peripheral neuropathy in women with breast cancer
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Chemotherapy-induced peripheral neuropathy (CIPN), characterized by numbness, burning, tingling, and sensory changes, in a “glove-and-stocking” distribution, is a common side-effect of taxane-based chemotherapies used in the treatment of breast cancer. Altered proprioception and motor weakness accompany more advanced CIPN, which may increase the risk of falls and drastically impair quality of life. Very little is known about CIPN incidence, prevalence, and risk factors, including whether there are age-related patterns in its development. Although breast cancer can occur at any age, it is primarily a disease of older women. A better understanding of CIPN across the adult lifespan is urgently needed to tailor prevention and management. This presentation will describe a recently completed systematic review of age-related patterns in CIPN, limitations of the available evidence, and implications for our understanding of CIPN development across the adult lifespan. Findings from a large prospective study of pain one year after breast cancer surgery will be presented demonstrating that more than one third of women who underwent taxane-based treatment continue to report chemotherapy-related pain six months later. They report greater neuropathic pain and pain catastrophizing than women with other cancer-related pain and pain-free women. They also have altered peripheral thermal sensitivity and pain threshold. Older age is associated with altered peripheral thermal sensitivity, suggesting that psychophysical testing could provide important information about the development of CIPN.
across the adult lifespan. Avenues for future research will be proposed, including the first prospective study to evaluate age-related patterns in CIPN development and impact.

**Interdisciplinary, Cognitive Behavioural and Mindfulness-Based Interventions to Support the Management of Chronic Neuropathic Pain Among Breast Cancer Survivors**

Patricia Poulin, PhD, Associate Scientist, The Ottawa Hospital Research Institute Clinical, Health, and Rehabilitation Psychologist, The Ottawa Hospital Pain Clinic Clinical Professor, School of Psychology and Department of Anesthesia, University of Ottawa

While there is a wealth of evidence demonstrating the benefits of interdisciplinary, cognitive-behavioural, and mindfulness-based interventions in the treatment of chronic musculoskeletal pain, there is a paucity of evidence supporting these approaches in the treatment of chronic neuropathic pain. This presentation will provide an overview of this research along with findings from our recently completed trial examining the relationship between psychological factors, pain, and disability among cancer survivors. Preliminary results from a trial examining the effects of an interdisciplinary intervention including a mindfulness-based stress reduction program on disability, psychosocial function and biomarkers of stress among breast cancer survivors living with chronic neuropathic pain will also be presented. Finally, we will explore avenues for future research integrating the biopsychosocial model of chronic pain to help improve the quality of lives of all women affected by breast cancer-related chronic neuropathic pain.