**Development of Pain Associated with Breast Cancer**

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**Key Words:**

Breast cancer, Quality of Life, Post Mastectomy Pain Syndrome, Prevention

Breast cancer is a cancer associated with abnormal cell growth located in the breasts. These cells divide more rapidly than normal cells and eventually forms a lump from the eventual accumulation. The risks of developing this cancer have been identified to be a mix of the environmental factors and the genetic makeup of an individual.

It is one of the most common cancer diagnoses in women, although it can occur in men as well. In 2018, there was an estimated 2.1 million new cases of breast cancer worldwide with an estimated 627,000 deaths. This makes the cancer the fifth leading cause of death. This number is particularly bad in Malaysia, where the number of new cases has been increasing over the years and currently sits at 17.3% of all new cancer cases in both men and women.

One complication from the cancer is the post-mastectomy pain syndrome (PMPS) that causes chronic neuropathic pain in the individual. Although this syndrome is not linked solely to breast cancer surgeries, it is still a significant complication from mastectomies and leads to a lower quality of life of individuals who experience this pain.

Quality of life is a good starting place when looking at how an individual deals with the pain after/during breast cancer. The pain/discomfort area was rated the worst on this scale in relation to medicine use and household income. It is important to address this pain and find good ways to help individuals manage it so that QoL scores can increase in the future and allow a better life to the survivor.

**Introduction**

The number of breast cancer cases, although declining due to advances in the knowledge of the cancer and modern treatments, is still a significant number. In many third-world countries, instead of that number declining, it is rapidly increasing. One study found, “Quality of Life of Women With Breast Cancer in a Tertiary Referral University Hospital”, focused on breast cancer diagnoses in Malaysia, due to the ever-increasing number of cases located in the area. The researchers found that in 2020 the number of new breast cancer cases was at 17.3% compared to other new cancer cases.

There are many physical and psychological impacts that are caused with the treatment of this cancer. The current treatment is life-threatening, complex (due to surgery, chemotherapy, radiotherapy, and endocrine hormonal therapy), time consuming due to the number of hospital visits, and expensive. There are many places across the world where this treatment plan is not accessible. The development of post-surgery complications is a huge risk associated with the treatment as well, particularly PMPS. This syndrome is estimated to effect 20-50% of mastectomy patients. As modern treatment plans and technology grows, so does the number of women expected to develop PMPS [2].

Various factors influence the QoL in these breast cancer patients, including socioeconomic status, education status, employment status, psychological challenges, and finances. The study found measures these factors and determines the QoL of patients in Malaysia after receiving treatment. By studying this, we can better understand how modern treatments leaves individuals in the long run and can better improve the likelihood of developing post-surgery complications, like post-mastectomy pain syndrome.

**Recent Progress**

There have been several case studies done to determine the association between chronic pain syndromes, like Post mastectomy pain syndrome, and the QoL score. One study interviewed women in Malaysia after receiving surgery and care at the Universiti Kebangsaan Malaysia Medical Center (UKMMC). This was conducted in 2017 and solely involved female patients with breast cancer. They interviewed a total of 173 women between the ages of 33 and 87 years old and determined their QoL score. This study helped determine the holes in research for breast cancer post operation care and how more research needs to be done in order to improve the scores of breast cancer survivors in the future [1].

Another study looked at many different procedures done before, during, and after surgeries in order to decide what best limits the diagnosis of PMPS. The study used 7 different interventions done, including physical therapy, mindfulness-based cognitive therapy, oral medications, surgical intervention, anesthesia, nerve blocks, and topical medication therapy. This study helped to determine what path is best with post-surgery care and how best to prevent chronic pain syndrome from occurring after a mastectomy. It also showed the need for further research in the design of care as many of the treatment options aren’t available to patients in need worldwide, so further development of more accessible treatments is necessary if there is to be a further decline in the number of cases of breast cancer worldwide [2].

**Discussion**

One study found, “Post Mastectomy Pain Syndrome: A Systematic Review of Prevention Modalities”, describes more about PMPS and another study was done to show the quality of life of the individuals with this syndrome. There were 7 different paths taken to help prevent the number of PMPS patients, including physical therapy, cognitive therapy, nerve blocks, general anesthesia, oral medications, surgical techniques, and topical medication therapy. The best mechanism for mastectomy pain seems to be a combination of preoperative nerve block, intraoperative lidocaine infusion, and post-operative medications to prevent the development of chronic pain. It is important to understand that post-operative pain syndrome greatly affects quality of life in individuals across the world and although this mechanism seems to be the most successful, not everyone has access to this kind of medication, nor can they afford it.

Unlike many, numerous women in Malaysia cannot afford this same kind of medications and disruptions to daily life. Due to this, their QoL is significantly lower than that which is seen in many first world countries around the world. The pain/discomfort area was mainly associated with traditional medicine use and household income. “Pain and insomnia are the most affected QoL domains in patients with breast cancer and are not restricted to patients who had received adjuvant chemotherapy and adjuvant radiotherapy” [1]. This means that even women who did not go through chemotherapy or radiotherapy were still significantly affected by pain and insomnia associated with breast cancer, leading to a lower QoL.

It is important to distinguish the shortcomings of modern techniques in order to later improve the QoL for all individuals across the world, rather than just those in first world countries. By bettering pain management techniques for cancer survivors, the QoL and the chance of developing chronic pain syndrome can be significantly decreased.

Both of these studies have significant impacts on the future of postoperative techniques as they show the effects of the current plans set in place and how it needs to be improved upon. It is important to focus on the need for better pain management techniques that isn’t an increase in solely opioids or other addictive pain medications that do not help a person heal fully. Increasing research on how best to prevent the buildup of scar tissue and disruptions to the central nervous system is necessary to increase the QoL. Also, finding ways to make treatment more affordable, more accessible, and with less disruptions to an individual’s life is so important if there is to be any improvement in the pain/discomfort and anxiety/depression domains on the QoL score. Individuals who feel excluded from others of their age group due to these problems will always struggle through these groups, making it more difficult for them to fight the way they need to rid themselves of the pain and cancer.

**References**

“Quality of Life of Women with Breast Cancer in a Tertiary Referral University Hospital.” *Health and Quality of Life Outcomes.*, vol. 20, no. 1, 2022, https://doi.org/10.1186/s12955-022-01921-1.

“‘Post Mastectomy Pain Syndrome: A Systematic Review of Prevention Modalities.’” *JPRAS Open.*, vol. 31, 2022, pp. 32–49., https://doi.org/10.1016/j.jpra.2021.10.009.

“Breast Cancer.” *Mayo Clinic*, Mayo Foundation for Medical Education and Research, 16 Oct. 2021, https://www.mayoclinic.org/diseases-conditions/breast-cancer/symptoms-causes/syc-20352470.