INPLASY PROTOCOL

To cite: Deng et al. The Post-mastectomy Pain Syndrome—A Systematic Review of the Perioperative Prevention and the Treatment Modalities. Inplasy protocol 2020120130. doi: 10.37766/inplasy2020.12.0130

Received: 24 December 2020

Published: 25 December 2020

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Support: **None.**

Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest:
None.

The Post-mastectomy Pain Syndrome—A Systematic Review of the Perioperative Prevention and the Treatment Modalities

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Review question / Objective: **Post-mastectomy pain syndrome (PMPS) is a significant complication of the treatment of breast cancer, with a prevalence of 2% to 78%.It is a neuropathic pain condition localized in and around the area of surgery and lasting more than 3 months after surgery . PMPS can develop shortly or up to several months after surgery and can persist for many years . PMPS has a considerable negative influence on the quality of life of the affected women. Like other neuropathic pain conditions, the treatment is a difficult task . The amount of research on the treatment and the perioperative prevention of PMPS is very limited and no consensus of the prevention and the treatment of PMPS has yet been made. Therefore, it is of high clinical relevance to find a safe, reliable, and tolerated prevention and treatment with a substantial effect on PMPS.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 December 2020 and was last updated on 25 December 2020 (registration number INPLASY2020120130).

INTRODUCTION

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Condition being studied: Presently,Various techniques have been implemented to reduce the risk of PMPS , and have achieved variable success. The preventive strategies include modification of the surgical technique, good pain control throughout the perioperative period, and preoperative psychological intervention focusing on the psychosocial and cognitive risk factors. There are also many options for the treatment of PMPS. Pharmacological therapies, local injections, neuromodulation, fat grafting, physical therapy, cognitive behavioral therapy, and lifestyle changes can all help reduce the pain and suffering of PMPS patients.

METHODS

Participant or population: Inclusion: 1.Adults with Chronic pain after breast cancer related surgery, including mastectomy, lumpectomy,and oncologic breast reduction, with or without Axillary node dissection 2.Postoperative follow-up time is more than 3 months or chronic pain occurs after surgery, and the pain lasts for more than 3 months. Exclusion: 1.Adults with chronic neuropathic pain in the breast or chest region that is not post surgical or not post breast cancer related surgery 2.Breast cancer patients undergoing breast reconstruction with tissue expanders, breast reconstruction with implants, breast reconstruction with free tissue transfer

Intervention: The interventions include perioperative analgesia, preservation of intercostal brachial nerves, different therapeutic drugs (such as antidepressants, ion channel modifiers, NDMA receptor inhibitors), fat transplantation, local treatments: local anesthesia and regional blockade Hysteresis, capsaicin, botulinum injection, neuromodulation, acupuncture, laser treatment, etc.

Comparator: When the data is extracted and analyzed, the pain outcome of different prevention and treatment methods will be compared.

Study designs to be included: We will include randomized controlled trials, meta-analysis, controlled clinical trials or comparative studies.

Eligibility criteria: Inclusion:Articles: (i) in English or chinese; (ii) including breast cancer surgery; (iii) Postoperative follow-up time >3 months or where pain duration was >3 months; (iv)regarding prevention or treatment of chronic postoperative pain;and (v) with study design: randomized, controlled trials, meta-analysis, controlled clinical trials, or comparative studies. Exclusion:Articles: (i) Conference abstracts, letters, announcements, registration information, unpublished studies (ii) regarding pain after reconstructive surgery; (iii) primarily regarding postoperative lymphedema; and (iv) with study design: other than those mentioned above.

Information sources: 1.We searched the following databases:PubMed, Embase, web of science, The Cochrane Library (Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials (CENTRAL)), CNKI, Wanfang Data, VIP Chinese Journal. 2. Citations identified through reference searching 3 Search dates: all literature dates included. 4.The searches will be re-run prior to the final analysis. 5.Restrictions: non-English language or non-Chinese language, animal studies.

Main outcome(s): This review aims to evaluate the prevention and treatment of

chronic pain after breast cancer surgery. This requires the identification of all these existing methods. Then, compare the pain results of different prevention techniques or combined techniques. A comprehensive assessment of the perioperative prevention and treatment of chronic neuropathic pain after breast cancer-related surgery will help guide health care providers to choose the most effective prevention and treatment strategies for patients undergoing this type of surgery.

Quality assessment / Risk of bias analysis: To evaluate the types of perioperative interventions to reduce the incidence of chronic pain after breast cancer patients undergoing mastectomy or breast-conserving surgery, and the level of efficacy of treatments for chronic pain syndrome after breast cancer surgery. Evaluation performed at the result level. The Criteria used to assess internal validity will be conducted with the help of the Cochrane risk of bias tool. The results of the assessment will inform data synthesis by identifying literature with bias that may make it no longer meet inclusion criteria. Two reviewers will be involved in the quality assessment, and a third will assist if there is a conflict between the two reviewers' judgments that can't be resolved between the two reviewers.

Strategy of data synthesis: This is a systematic review aimed at identifying and comparing perioperative intervention methods to prevent and reduce the incidence of chronic pain syndrome after breast cancer surgery and the treatment of chronic pain syndrome after breast cancer surgery. Data synthesis does not require minimal Number of studies or level of consistency. Studies with lower levels of evidence will be noted, and in the final analysis, we will discuss the percentage of outcome data for specific interventions based on studies with lower levels of evidence. The data to be synthesized is the pain result after a specific preventive intervention, broken down into quality, duration, quantity, and disability level, which is an assessment of finding different forms of pain. Individual research data will be combined into groups based on intervention patterns, and then subgroups will be created within each pattern category based on the documents found. The Pain outcomes between the subgroups within the category and each pattern category will be compared and analyzed.

Subgroup analysis: For perioperative prevention methods, we will compare surgical methods with and without intercostal brachial nerve preservation, different intraoperative analgesics or anesthesia techniques, and preoperative psychological intervention methods for psychosocial and cognitive risk factors. The incidence of pain syndrome after breast cancer surgery. For breast cancer patients with chronic postoperative pain syndrome, we will compare different treatment drugs (such as antidepressants, ion channel modulators, NDMA receptor inhibitors), fat transplantation, local treatments: local anesthesia and regional blockade , Capsaicin, Botox injection, neuromodulation, acupuncture, laser treatment, etc. have the effect of eliminating or relieving pain. These subgroups will include all types of studies, and a separate analysis will examine the distribution of study types in each subgroup. Standard statistical models will be used to compare results between subgroups within the treatment regimen. The quality of evidence for each study will be considered and reflected in the analysis, which shows the distribution of the level of evidence for each subgroup of treatment modalities.

Sensibility analysis: Sensitivity analysis will be used to test reliability and stability of the systematic review resuils, and to assess the source of heterogeneity. We will compare the resuils before and after by excluding trials with a high risk of bias or eliminating trials with a high risk of bias or eliminating each study individually one study each time and then pooling the remaining studies.

Country(ies) involved: China.

Keywords: Breast cancer; Mastectomies; chronic pain; Post-mastectomy pain syndrome.

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