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Image-guided percutaneous cryoablation of breast cancer

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Introduction: Percutaneous cryoablation has emerged as a minimally invasive alternative to conventional surgical treatment of breast cancer, particularly in patients with comorbidities, advanced age, or who refuse conservative surgery. The technique uses extremely low temperatures to destroy localized tumors, with the potential for lower morbidity and better aesthetic results. **Objective:** This study aimed to evaluate the efficacy, safety, and feasibility of image-guided percutaneous cryoablation in the treatment of breast cancer, focusing on its application as curative or palliative treatment in selected patients. **Methods:** Prospective and retrospective studies of ultrasound-, computed tomography-, or magnetic resonance-guided cryoablation were analyzed, with different sample sizes and monitoring methods. A literature review was performed using the descriptors "cryoablation" and "breast cancer" on the PubMed, LILACS, VHL, NICE, and SciELO databases. Among the 83 publications, 15 were selected from the last five years. The parameters evaluated included local tumor control, complications, patient satisfaction, and efficacy of imaging methods in post-procedure follow-up. **Results:** Cryoablation was well tolerated, performed under local anesthesia, and technically successful in most cases. Complete ablation rates ranged from 70% to 100%, especially effective in tumors smaller than 15 mm. Complications were rare and mild, such as hematomas or superficial burns. Most patients had good local control, with a low recurrence rate. Imaging methods such as magnetic resonance imaging and contrast-enhanced mammography were useful in assessing the efficacy of the ablation technique. Patient satisfaction was high, even in palliative settings. **Conclusion:** Image-guided percutaneous cryoablation is a safe, effective, and promising therapeutic option for early breast cancer in selected patients. It can provide good tumor control with less physical and emotional impact, being especially valuable when surgery is not indicated. However, the high cost inhibits its indication. Additional studies are needed to consolidate its clinical application.

Keywords: cryoablation; breast cancer.