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CONSENSUS

Mexican consensus on breast cancer 2025: multidisciplinary care for breast cancer

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Abstract

The 2025 Mexican Breast Cancer Consensus offers a comprehensive update on multidisciplinary care for breast cancer from diagnosis to advanced disease. It reviews the early integration of supportive and palliative care, systematic assessment of physical, psychological, social, spiritual symptoms, and strategies for managing pain, dyspnea, fatigue, anorexia, and delirium. It also addresses relevant genetic aspects, including indications for molecular testing and follow-up of carriers of pathogenic

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variants in BRCA and other high-risk genes.The psycho-oncological approach is described, with evaluation of distress, anxiety, depression, and the implementation of cognitive behavioral and dignity therapies.

Keywords: *Breast cancer. Multidisciplinary care. Palliative care. Molecular testing. Psychooncology. Rehabilitation.*

Consenso mexicano de cáncer mamario 2025. Cuidados multidisciplinarios del cáncer de mama

Resumen

Este Consenso Mexicano 2025 de Cáncer Mamario presenta una actualización integral de los cuidados multidisciplinarios para el cáncer de mama desde el diagnóstico hasta la etapa avanzada. Se revisa la integración temprana de cuidados de soporte y paliativos, evaluación sistemática de síntomas físicos, psicológicos, sociales, espirituales, y estrategias para el tratamiento del dolor, disnea, fatiga, anorexia y delirium. Se abordan los aspectos genéticos relevantes (pruebas mole-culares, seguimiento de portadoras de variantes patogénicas en BRCA y otros genes de alto riesgo). Se describe el abordaje psicooncológico, con evaluación de distrés, ansiedad, depresión y la aplicación de terapias cognitivo-conductuales y de dignidad.

Palabras clave: *Cáncer de mama. Cuidados multidisciplinarios. Cuidados paliativos. Pruebas moleculares. Psicooncología. Rehabilitación.*

Multidisciplinary care of breast cancer

Integration of supportive and palliative care in the treatment of patients with advanced breast cancer

Cancer and its treatments cause symptoms that significantly impact the quality of life of patients and their families[1-4]. Patients with breast cancer may experience physical, psychological, and spiritual symptoms[5,6].

The priorities of supportive or palliative care in individuals with advanced breast cancer vary throughout the course of the disease, with rapidly progressive symptomatic changes or prolonged periods of stable symptoms (Fig. 1)[7]. Oncology professionals must be trained to provide basic supportive and palliative care and to collaborate closely with palliative care specialists from the time of diagnosis[6,8].

Palliative care consists of active, holistic care for individuals of all ages experiencing severe health-related suffering due to serious illness, particularly those nearing the end of life. Its goal is to improve quality of life for patients, their families, and caregivers. It includes prevention, early identification, comprehensive assessment, and management of physical problems—including pain and other distressing symptoms—psychological suffering, spiritual distress, and social needs[9]. Early integration of supportive and palliative care into cancer management improves quality of life, symptom control, patient and family satisfaction, end-of-life care, and healthcare costs[10]. The American Society of Clinical Oncology (ASCO) recommends that patients with advanced cancer receive early supportive and palliative care alongside antineoplastic treatments (Table 1). Similar recommendations have been issued by other professional societies[5,12,13].

Assessment of palliative care needs

Systematic and structured evaluation of physical symptoms, psychological and psychiatric symptoms, cognitive alterations, illness understanding and prognosis, care needs, existential concerns, and emotional and financial distress is essential, using validated instruments. Effective symptom control strengthens patient and family confidence.

Eight core domains should be assessed:

– Physical aspects of care (symptoms)
– Psychological and psychiatric aspects
– Social aspects
– Spiritual, religious, and existential aspects
– Cultural aspects of care
– Care of the patient approaching the end of life
– Ethical aspects of care
– Advance care planning and advance directives in accordance with current legislation

Pain, fatigue, dyspnea, nausea, depression, anxiety, and insomnia are the most common symptoms[2]. A frequently used strategy in supportive and palliative care services is family meetings, which address medical

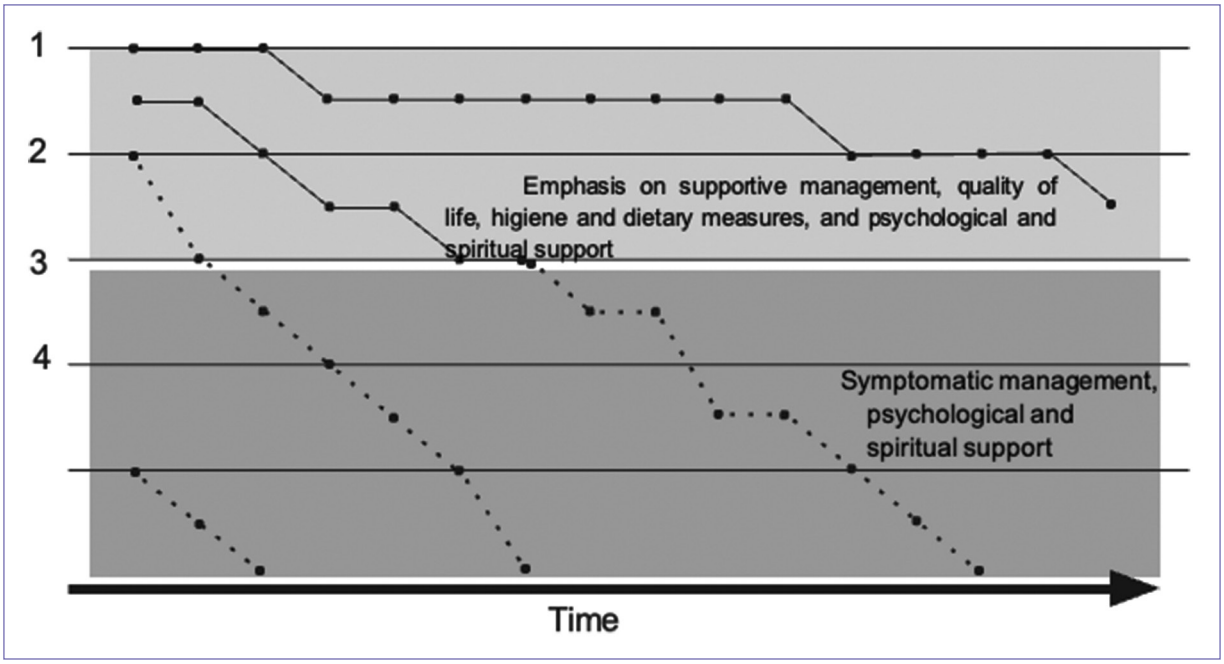


Figure 1. Possible trajectories in the progression of metastatic breast cancer: 1) slow progression; 2) gradual deterioration; 3) rapid progression; and 4) poor prognosis at diagnosis. Symptom stability (solid line) or high symptom burden (dashed line) (*modified from Kida et al.*[7]).

Table 1. Integration of supportive and palliative care into standard oncology care: update of the American Society of Clinical Oncology (ASCO) clinical practice guideline. main recommendation

Supportive and palliative care should be initiated concurrently with antineoplastic treatment. Referral to a supportive and palliative care service may complement routine oncologic management and should include the patient's family. (Evidence-based: benefits outweigh risks; quality of evidence, intermediate; strength of recommendation, strong.)
The essential components of supportive and palliative care services should include: – Ability to establish empathetic and engaged relationships with patients and families – Management of symptoms, distress, and functional decline (e.g., pain, dyspnea, fatigue, insomnia, anxiety, depression, etc.) – Strategies to assess and educate about illness understanding and prognosis – Guidance in establishing goals of care – Evaluation and support of coping mechanisms and needs – Assistance with medical decision-making – Coordination with other specialists – Defined referral and counter-referral criteria
For patients newly diagnosed with advanced cancer, the expert panel suggests integrating supportive and palliative care within the first eight weeks after diagnosis. (Evidence-based: informal consensus; quality of evidence, intermediate; strength of recommendation, moderate.)
Outpatient oncology care models should include programs and resources to provide ambulatory supportive and palliative care for highly symptomatic patients or those with unmet physical or psychosocial needs. (Evidence-based: benefits outweigh risks; quality of evidence, intermediate; strength of recommendation, moderate.)

Modified from Sanders et al.[11]

aspects, treatment goals, identification of support networks, and recommendations for the primary caregiver. Such multidomain assessments are uncommon in routine oncology consultations[3-6]. Comprehensive oncologic-palliative assessment should include discussion of treatment risks and benefits and prognosis, ensuring that patients and caregivers understand the seriousness of the disease. In this context, the oncologist's perspective on referral to supportive and palliative care should be considered (Fig. 2)[4,7].

Symptom management by the oncologist

Symptoms intensify in advanced breast cancer and near the end of life, leading to increased dependency and suffering. Additional symptoms related to spinal cord compression, brain and bone metastases, lymphedema, and anemia further impair quality of life[2,3].

Pain

Pain occurs in up to 70% of patients with advanced breast cancer due to disease progression[4-6]. Management requires an approach that integrates antitumor therapy, analgesic therapy, and psychological support. The most common cause is bone metastasis and its complications. Other causes include chest wall infiltration, brachial plexopathy, and abdominal distension-related pain. It is essential that oncologists are familiar with pharmacologic options for severe pain, particularly strong opioids (Fig. 3). Early referral to pain and palliative care specialists is strongly recommended[5]. Recommendations for integrating patients and caregivers into pain management include:

– Providing clear written medical instructions
– Emphasizing the importance of contacting the physician if pain becomes uncontrolled
– Offering coping and self-management strategies
– Identifying patient expectations for symptom control
– Providing tools to prevent caregiver burnout
– Promoting healthy lifestyle strategies, exercise, and nutrition

Dyspnea

Dyspnea is the subjective experience of breathing discomfort with qualitatively distinct sensations of varying intensity. Underlying causes should always be addressed (anemia, heart failure, asthma, pulmonary infection, etc.). Low-dose oral morphine is the drug of choice (Fig. 4)[4-6].

Fatigue

Common in patients undergoing treatment and in survivors. Evaluation should exclude potentially treatable causes such as anemia, thyroid dysfunction, pain, depression, and insomnia.

Anorexia

Common in advanced cancer and a major concern for families. Megestrol acetate stimulates appetite but does not improve quality of life or increase muscle mass and increases the risk of edema and thromboembolic events. Corticosteroids improve appetite, but prolonged use causes multiple adverse effects.

Delirium

The most frequent neuropsychiatric complication in advanced breast cancer. It is characterized by global cerebral dysfunction of uncertain etiology with fluctuations in alertness, attention, thinking, perception, memory, psychomotor behavior, emotions, and the sleep-wake cycle. It may be hyperactive or hypoactive, the latter being more common and frequently underdiagnosed. Several screening tools are available, with the Confusion Assessment Method being the simplest.

Genetics and breast cancer

Indications for molecular testing

Between 5 and 10% of breast cancers are associated with a hereditary syndrome, and 25-40% of these patients are younger than 35 years[15,16]. Genes related to hereditary breast cancer can be divided into those conferring high susceptibility (> 50%) (*BRCA1, BRCA2, CDH1, NF1, PTEN, TP53, PALB2, STK11*) and those conferring moderate susceptibility (20%–50%) (*ATM, BRIP1, CHEK2, RAD51C, RAD51D, NBS1*)[16-20]. The prevalence of germline pathogenic variants (PV) in *BRCA1* and *BRCA2* in the general population ranges from 1 in 50 to 1 in 800, depending on ethnicity. Women carrying PVs in *BRCA1* have a cumulative lifetime breast cancer risk by age 80 of up to 72%, and up to 69% for *BRCA2* carriers; the 20-year cumulative risk of contralateral breast cancer is up to 40% and 25% for *BRCA1* and *BRCA2* carriers, respectively. The cumulative lifetime risk of ovarian cancer by age 80 is up to 58% in *BRCA1* PV carriers and 29% in *BRCA2* PV carriers[21-23]. Hereditary breast cancer follows an autosomal dominant inheritance pattern; therefore, first-degree relatives of carriers have a 50% risk of inheriting the variant[18]. It is essential for healthcare professionals to identify patients at high risk for hereditary cancer.

Cancer type and age at diagnosis among relatives are key factors in identifying hereditary cancer syndromes, and molecular testing is indicated in populations at risk (Table 2)[20,21]. All individuals undergoing germline testing should receive pre- and post-test genetic counseling. Incomplete or inadequate

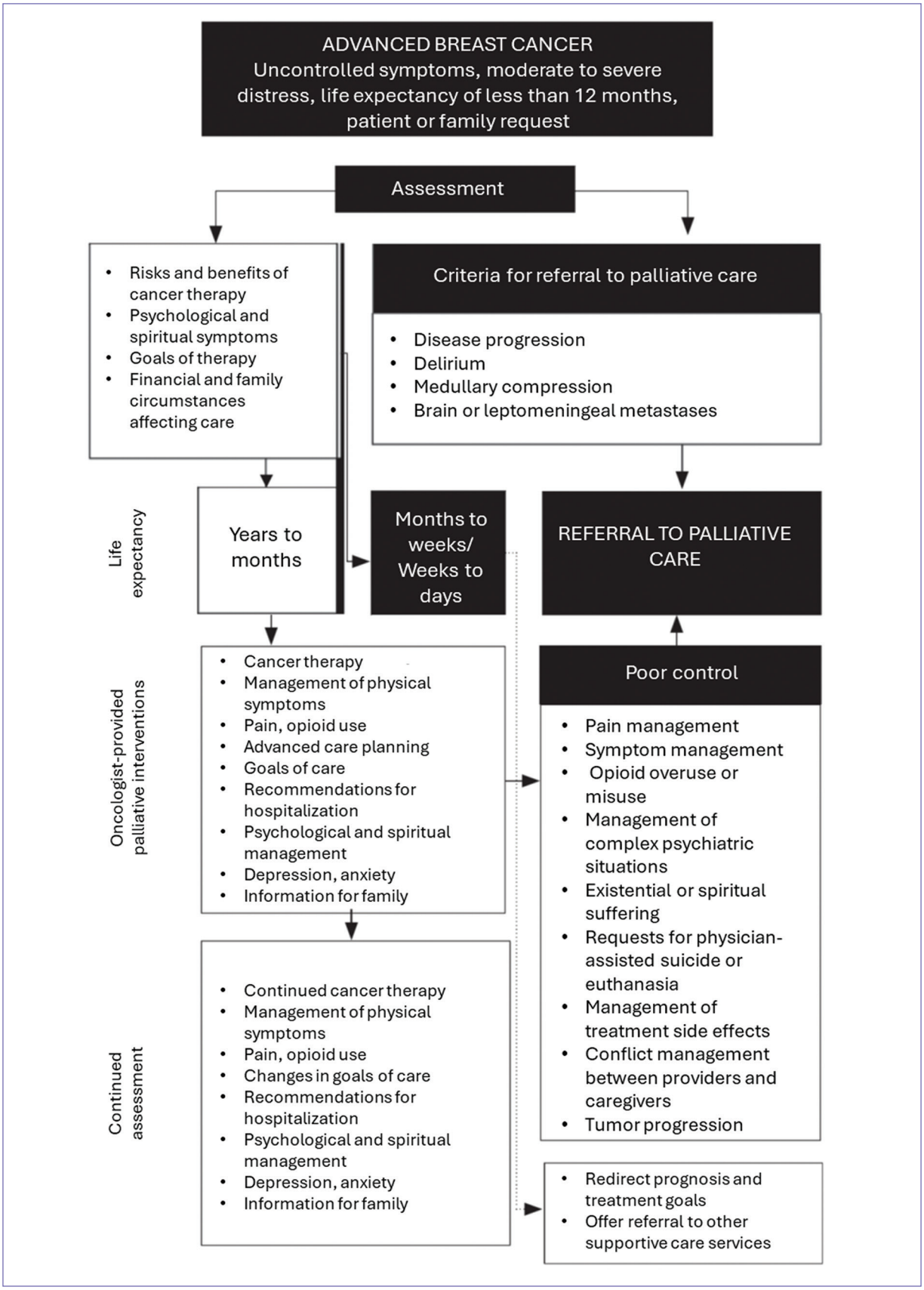


Figure 2. Role of the oncologist in palliative care (*modified from NCCN Guidelines Version 1.2025*[14]).

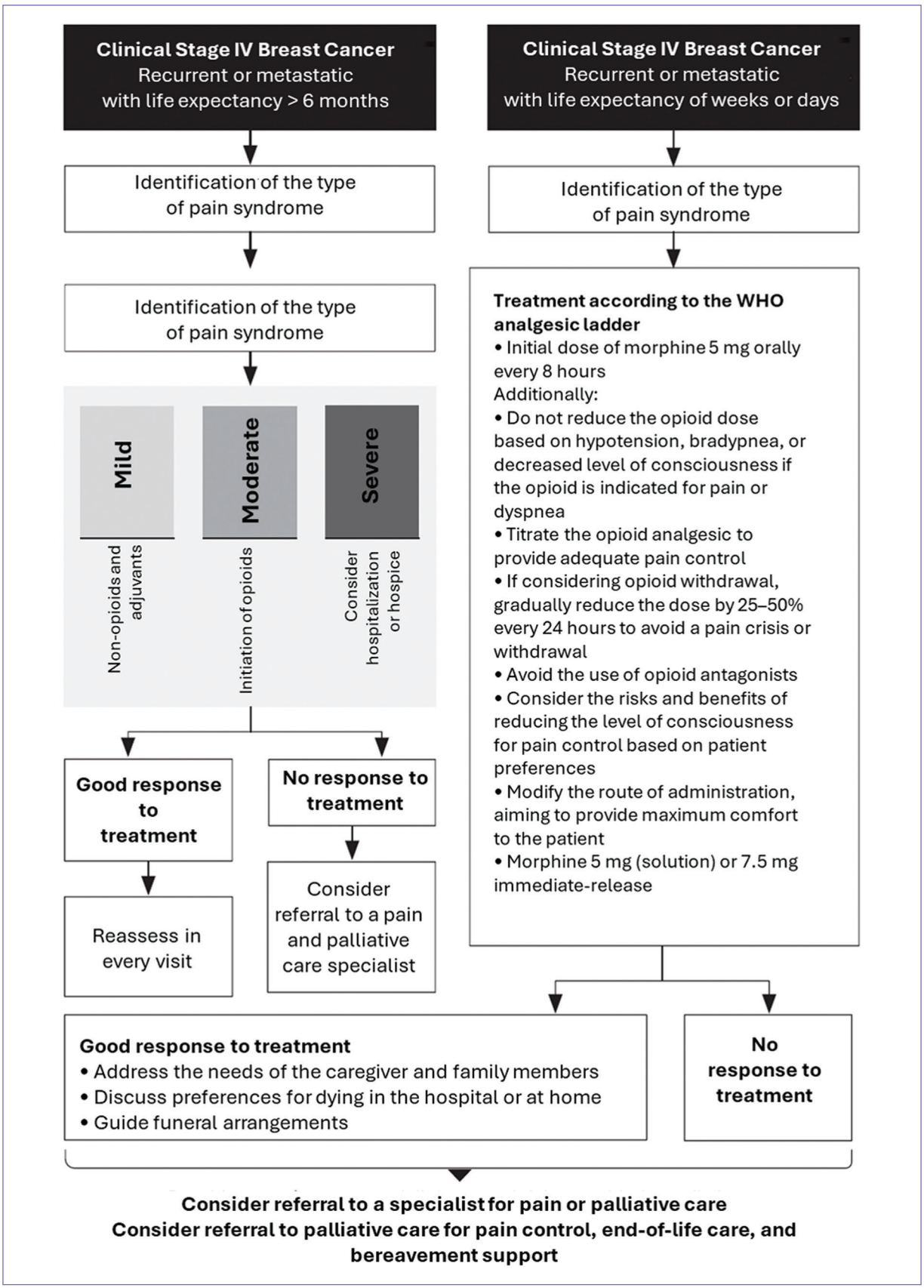


Figure 3. Pain management (*modified from NCCN Guidelines Version 1.2025*[14]). WHO: World Health Organization; PO: oral route.

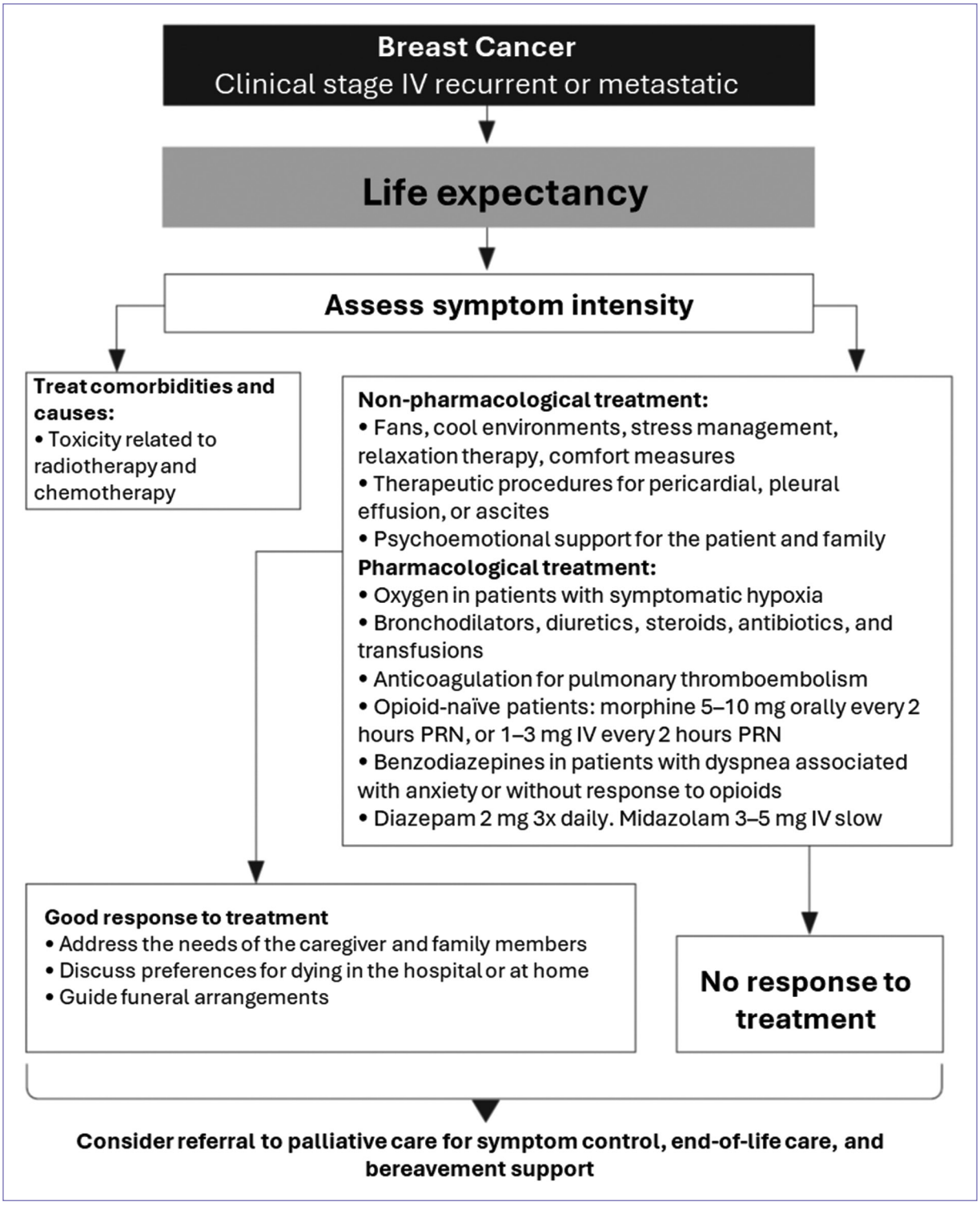


Figure 4. Dyspnea management (*modified from NCCN Guidelines Version 1.2025*[14]). IV: intravenous; AN: as needed; PO: oral route.

counseling is associated with adverse effects, including negative emotional impact, inappropriate surgical and surveillance decisions, misinterpretation of test results, and financial consequences[23].

Multigene panels are limited by incomplete knowledge of cancer risk for many genes, lack of clear clinical guidelines, and a high proportion of variants of uncertain significance (VUS), and should therefore be ordered by trained

Table 2. National Comprehensive Cancer Network criteria, Version 2.2025

Individuals with a family member carrying a pathogenic or likely PV (only the known familial PV should be tested)[1]
Individuals with a history of partial or limited molecular testing
Personal history of cancer diagnosed at ≤ 50 years of age
Diagnosis at any age, with any of the following: – Therapeutic indications (metastatic breast cancer, HER2–) (PARP inhibitors) – Triple-negative tumor – Multiple primary tumors (synchronous or metachronous) – Lobular breast cancer with personal or family history of diffuse gastric cancer – Male breast cancer – Ashkenazi Jewish ancestry
Family history: – ≥ 1 close relative with breast cancer ≤ 50 years – Male with breast cancer – Epithelial ovarian cancer (including fallopian tube and peritoneal cancer) – Pancreatic cancer – Metastatic, high-risk, or very high–risk prostate cancer – ≥ 3 breast cancer diagnoses in the patient and/or close relatives (1st, 2nd, or 3rd degree) – ≥ 3 close relatives with prostate cancer
Patient with a PV identified on somatic tumor testing that may have germline implications Only indication in which multigene panel testing should not be ordered

*Only indication for not requesting a multigene panel.
PARP: poly (ADP-ribose) polymerase; PV: pathogenic variant.

healthcare professionals[20-24]. The genes included in a panel should be selected based on personal and family history, patient preferences, and availability. Genes strongly recommended for inclusion are *BRCA1*, *BRCA2*, and PALB2. Other high-risk genes such as *CDH1, PTEN, STK11*, and *TP53* are associated with specific syndromes and, due to their low population prevalence, may be omitted if the personal or family history is not suggestive. Genes with moderate risk or lesser impact on clinical management—*ATM, BARD1, CHEK2, RAD51C, RAD51D, NF1*—may be considered additionally. Once a high- or moderate-risk PV carrier is identified, cascade testing should be offered to at-risk relatives. In individuals under 18 years of age, genetic testing is generally not recommended unless results would influence medical management; exceptions include suspected *TP53* or *NF1* variants[24].

The triple-negative breast cancer phenotype is strongly associated with *BRCA1* pathogenic variants in up to 20% of cases[25-27]. In the Mexican population, 30-40% of cases may harbor a founder deletion in *BRCA1* involving exons 9-12; therefore, this variant should be actively screened[28].

Follow-up of patients with high-risk pathogenic variants

Monthly breast self-examination is recommended beginning at 18 years of age, with annual or semiannual clinical examination and both mammography and breast MRI starting at 25 years[22]. The age of initiation may be adjusted according to the earliest age of diagnosis in the family. In women aged 76 years or older, management should be individualized. For individuals assigned male at birth, breast self-examination and annual clinical breast examination are recommended beginning at 35 years. Annual mammography should be considered starting at 50 years or 10 years beforethe earliest male breast cancer diagnosis in the family (whichever occurs first), particularly for *BRCA2* PV carriers.

Chemoprevention and risk-reducing procedures in high-risk PV carriers

Chemoprevention with tamoxifen and aromatase inhibitors[29], as well as risk-reducing mastectomy and combined mastectomy/oophorectomy-salpingectomy[2,15], should be considered only in carefully selected individuals by a multidisciplinary team, based on objective cancer risk and patient preferences after genetic counseling.

Psycho-oncologic aspects of breast cancer

The diagnosis of breast cancer represents a profound existential threat and premature risk of death for

patients. Its psychological impact depends on multiple factors, including age, socioeconomic status, pre-existing mental health conditions, coping mechanisms, and social support.

Psychological assessment

One of the most prevalent psychological problems in patients with breast cancer is distress, defined by the National Comprehensive Cancer Network (NCCN) as "an unpleasant emotional experience of psychological (cognitive, behavioral, emotional), social, and/or spiritual nature that interferes with the ability to cope with cancer, its physical symptoms, and/or its treatment"[30].

Distress, depression, and anxiety are the most prevalent mental health conditions in this population. These conditions are associated with sleep disturbances, pain, and fatigue, particularly in patients with metastatic disease[31]. Early diagnosis and psychosocial treatment of these conditions, along with assessment of coping style, are essential, as they influence physician-patient communication, self-care, treatment adherence, and quality of life. Patients may also experience sexual dysfunction, cognitive impairment, body image disturbance, relationship difficulties, parenting challenges, stigmatization, and perceived discrimination.

Young women may have concerns regarding future fertility; therefore, adaptive coping strategies, self-esteem enhancement, and participation in support groups or peer associations should be promoted[32,33].

Survivors may experience anxiety, fear of recurrence, decreased executive function, impaired working memory, and concentration difficulties.

Primary caregivers also experience psychosocial burden, including anxiety, depression, caregiver overload, and reduced self-care. Cancer significantly affects partner relationships, particularly in couples with poor problem-solving skills, pre-existing marital difficulties, and differing perceptions and expectations regarding cancer[34]. Table 3 summarizes assessment and treatment considerations.

Psychological therapy

Cognitive-behavioral therapy (CBT) is the preferred therapeutic approach for oncology patients presenting psychological distress. Its objective is to modify maladaptive cognitions and behaviors that complicate health problems by correcting dysfunctional thinking patterns and beliefs, strengthening coping resources, and promoting emotional self-regulation.

The goals of CBT include: 1) addressing psychological problems associated with diagnosis, treatment, and follow-up, and 2) managing treatment-related side effects such as nausea, vomiting, pain, insomnia, incontinence, and sexual dysfunction.

Patients may benefit from several forms of professional psychological intervention, including:

- Psychoeducational interventions (counseling).
- Individual psychotherapeutic interventions (behavioral, cognitive, dynamic).
- Group interventions mediated by psychological processes[39].

CBT has been shown to improve symptom control, affective state related to specific situations, and coping with disease[39].

A different alternative is counseling for patients with mild to moderate psychological symptoms. Finally, in patients with advanced cancer and those receiving palliative care, dignity therapy has demonstrated positive effects on emotional well-being.

Self-care

Promotion of self-care improves health literacy, self-image, nutritional, reproductive, and social domains. According to the Health Belief Model, four variables determine health behaviors:

- Perceived vulnerability: the individual must perceive themselves as vulnerable to the disease.
- Perceived severity: the individual must consider the consequences of the disease to be serious.
- Perceived benefits: the individual must believe the health behavior will reduce the disease threat.
- Perceived barriers: the individual must consider that the negative aspects of preventive action are manageable.

The psycho-oncology professional plays a key role in fostering adaptive behaviors during and after cancer treatment.

Physical rehabilitation in breast cancer patients

Breast cancer and its treatment can significantly impact physical function. Surgical procedures (with or without axillary lymph node dissection), systemic therapy (chemotherapy, hormone replacement therapy, immunotherapy, and targeted therapy), and radiotherapy are associated with complications such as infections (cellulitis, erysipelas, lymphangitis), seroma, hematoma, musculoskeletal biomechanical alterations,

Table 3. Psycho-oncological assessment and treatment

Objective	Instrument	Treatment period	Therapeutic alternatives
Patients with breast cancer			
Assess level of emotional distress, symptoms of depression and anxiety	Distress thermometer Patient health Questionnaire (PHQ-9)[35] Generalized anxiety disorder scale (GAD-7)[35]	– Diagnosis – Treatment period	– Psychoeducation – Cognitive-behavioral therapy
Assess fear of recurrence	Cancer worry scale (CARS)[36]	– Follow-up period	Cognitive-behavioral therapy
Dignity and existential needs	Patient dignity inventory (PDI)	– Palliative treatment	Dignity therapy
Partners and informal primary caregivers			
Determine level of dyadic adjustment within the couple's relationship	Dyadic adjustment scale	– Diagnosis – Start of treatment – Treatment period	– Information – Psychoeducation – Cognitive-behavioral therapy
Assess caregiver burden and coping related to patient care	Zarit burden interview[37] Brief COPE coping inventory[38]	– Treatment period – Palliative treatment	– Psychoeducation – Cognitive-behavioral therapy

axillary web syndrome, phantom pain, neuropathic pain, fatigue, and lymphedema.

Oncologic physical rehabilitation aims to assess, evaluate, and treat physical sequelae arising from cancer treatments. These sequelae may occur at any disease stage and include loss of function, reduced physical performance, decreased independence, and deterioration of quality of life.

Rehabilitation is delivered across 3 fundamental phases:

– Preventive: reducing the impact and severity of anticipated disabilities.
– Restorative: restoring premorbid function and minimizing disability.
– Supportive: helping patients overcome disease- and treatment-related difficulties while fostering a sense of control and adaptation.

Physical exercise, yoga, and techniques such as myofascial release improve shoulder mobility, pain, and fatigue. Individualized approaches based on patient-specific needs are essential for optimizing outcomes and improving short- and long-term quality of life[40].

Axillary web syndrome

Axillary web syndrome (AWS) affects approximately 30% of patients, particularly young, slender women who have undergone removal of one to three lymph nodes[41,42]. It is characterized by painful, rigid cords extending from the axilla to the arm, restricting movement and causing pain[42].

It commonly appears within the first weeks after surgery[43]. Treatment includes manual therapy and lymphatic drainage[44,45]. Axillary radiotherapy may worsen morbidity by promoting fibrosis and lymphedema[42,46,47].

Shoulder mobility and prevention of postoperative complications

Patients treated with curative intent should receive training on scar management and fascial mobilization after suture and drain removal. This reduces deep adhesions, improves flexibility and mobility, decreases scar thickness, and prevents pectoralis major spasm, frozen shoulder, and adhesive capsulitis.

Glenohumeral mobilization should begin on the first postoperative day with shoulder flexion and extension at 90° elbow flexion. Shoulder abduction should be avoided for 7 days to allow lymphatic capillary restoration. Passive shoulder exercises should begin on day 8, followed by active exercise and stretching programs to maintain lymphatic permeability and muscle function.

Lymphedema

Lymphedema is characterized by abnormal accumulation of lymphatic fluid in the interstitial space, leading to progressive limb enlargement, reduced functional and immune capacity, weight gain, and morphological changes. Axillary dissection significantly increases risk, especially when combined with radiotherapy. Overweight and obesity further increase risk and

worsen outcomes[48-51]. Early rehabilitation is essential[52].

Complications of lymphedema[53]:

– Recurrent infections (lymphangitis, erysipelas, cellulitis).
– Body image disturbance.
– Situational and chronic low self-esteem.
– Social interaction impairment.
– Personal identity disorder.
– Activity intolerance.
– Self-care deficit.

Stages of lymphedema

– Stage 0: latent, no clinical signs.
– Stage I: reversible swelling; improves with elevation.
– Stage II: spontaneously irreversible; fibrosis; firm tissue.
– Stage III: lymphostatic elephantiasis; severe functional limitation.

Lymphedema treatment

It is recommended to adhere to a series of measures to optimize lymphatic function and capacity:

– Apply thermotherapy or cryotherapy to the affected quadrant.
– Avoid massage in the affected quadrant.
– Avoid saunas, steam baths, and hot tubs.
– Use diuretics only under medical indication.
– Follow a guided progression when lifting heavy objects.

Medical compression garments for risk reduction (20-30 mmHg) should be prescribed by a specialist in lymphedema management, who must provide specific instructions for travel, physical activity, and strenuous activities at home and in the workplace. The recommended treatment for lymphedema is complex decongestive therapy (CDT)[12,54] or combined physical therapy[40], which consists of a sequence of techniques designed to promote adequate lymphatic drainage and fibrosis release. Although lymphedema has no cure, this treatment can significantly reduce and control it.

The components of CDT include:

– Nail and skin care of the affected quadrant.
– Manual lymphatic drainage (MLD).
– Compression therapy using multilayer short-stretch bandages or inelastic Velcro devices and medical compression garments.
– Myolymphokinetic exercises[40].
– Neuromuscular taping (optional).
– Sequential pressotherapy (optional).

This therapy, non-invasive in most cases, restores the patient's sense of control over lymphedema and facilitates reintegration into functional life. Patients who already have lymphedema must undergo this treatment before using a compression sleeve. Using a sleeve without prior therapy can cause hand edema and may lead both patients and clinicians to believe that the sleeve is ineffective.

Neuromuscular taping, when applied with proper technique and respecting lymphatic anatomy, is intended to stimulate lymphatic drainage as part of CDT; due to its elasticity and S-shaped adhesive properties, it physiologically stimulates afferent receptors, producing changes in interstitial pressure that favorably complement the intervention[41].

Sequential pressotherapy, with a working pressure of 20-40 mmHg and a duration of 20-45 minutes, serves as a complementary component of MLD. MLD must always be performed before pressotherapy.

Physical exercise can help control musculoskeletal symptoms and joint mobility. Physical activity, together with analgesic use, aims to improve functional capacity and restore the patient's sense of control over pain[42].

Lymphatic drainage, exercise, and compression garments help reduce local levels of inflammatory mediators, which are often associated with edema and pain[55], body image disturbance, and decreased libido[43].

Physical rehabilitation in patients with advanced disease

Patients with advanced breast cancer may experience edema, decreased mobility, and skin ulcers. These conditions interfere with activities of daily living, leading to loss of independence and deterioration of quality of life for both patients and caregivers[49,50].

Therefore, the goal of rehabilitation therapy in patients with advanced disease is to maintain self-sufficiency for as long as possible by preserving mobility and muscle strength while reducing pain. This includes the use of complex decongestive therapy or combined physical therapy. Additionally, training the primary caregiver in techniques to maintain, improve, or reduce disability is essential.

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Conflicts of interest

The authors declare no conflicts of interest.

Ethical disclosures

Protection of humans and animals. The authors declare that no experiments on humans or animals were performed for this research.

Confidentiality, informed consent, and ethical approval. The study does not involve personal patient data and does not require ethical approval. The SAGER guidelines do not apply.

Statement on the use of artificial intelligence. The authors declare that they did not use any type of generative artificial intelligence in the preparation of this manuscript.

References

1. Nunes KZ, Grippa WR, Lopes AB, Gomes KN, Grassi J, Neto LCBS, et al. Cancer symptom clusters, cardiovascular risk, and quality of life of patients with cancer undergoing chemotherapy: A longitudinal pilot study. Medicine (Baltimore). 2024;103(16):e37819.
2. Allemani C, Matsuda T, Di Carlo V, Harewood R, Matz M, Nikšić M, et al. Global surveillance of trends in cancer survival 2000-14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. Lancet. 2018;391(10125):1023-1075.
3. National Cancer Institute. Surveillance, epidemiology, and end results (SEER) program. Cancer facts: female breast cancer. Available from URL: https://seer.cancer.gov/statfacts/html/breast.html
4. Unger-Saldaña K. Challenges to the early diagnosis and treatment of breast cancer in developing countries. World J Clin Oncol. 2014;5(3):465-77.
5. Lord SJ, Bahlmann K, O'Connell DL, Kiely BE, Daniels B, Pearson SA, et al. De novo and recurrent metastatic breast cancer - A systematic review of population-level changes in survival since 1995. EClinicalMedicine. 2022;44:101282.
6. Mertz S, Benjamin C, Girvalaki C, Cardone A, Gono P, May SG, et al. Progression-free survival and quality of life in metastatic breast cancer: The patient perspective. Breast. 2022;65:84-90.
7. Kida K, Olver I, Yennu S, Tripathy D, Ueno NT. Optimal supportive care for patients with metastatic breast cancer according to their disease progression phase. JCO Oncol Pract. 2021;17(4):177-183.
8. Burt M, Kamal AH. Practical strategies for optimizing and integrating palliative care in cancer. Curr Oncol Rep. 2018;20(12):97.
9. Palliative Care Definition [Internet]. Houston, TX: International Association for Hospice and Palliative Care (2018). Available from URL: https://hospicecare.com/what-we-do/projects/consensus-based-definition-of-palliative-care/definition
10. Hui D, Bruera E. Models of integration of oncology and palliative care. Ann Palliat Med. 2015;4(3):89-98.
11. Sanders JJ, Temish S, Ghoshal A, Alesi ER, Ali ZV, Chauhan C et al. Palliative Care for Patients With Cancer: ASCO Guideline Update. J Clin Oncol. 2024;42(19):2336-57.
12. Ferrell BR, Temel JS, Temin S, Alesi ER, Balboni TA, Basch EM, et al. Integration of palliative care into standard oncology care: American Society of Clinical Oncology Clinical Practice Guideline Update. J Clin Oncol. 2017;35(1):96-112.
13. Dans M, Kutner JS, Agarwal R, Baker JN, Bauman JR, Beck AC, et al. NCCN Guidelines® Insights: Palliative Care, Version 2.2021. J Natl Compr Canc Netw. 2021;19(7):780-788.
14. National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®): Palliative Care. Version 1.2025. Plymouth Meeting, PA: National Comprehensive Cancer Network; 2025. Available at: https://www.nccn.org/guidelines/guidelines-detail?category=1&id=1475
15. González-Santiago S, Ramón Y Cajal T, Aguirre E, Alés-Martínez JE, Andrés R, Balmaña J, et al. SEOM clinical guidelines in hereditary breast and ovarian cancer (2019). Clin Transl Oncol. 2020;22(2):193-200.
16. Wendt C, Margolin S. Identifying breast cancer susceptibility genes - a review of the genetic background in familial breast cancer. Acta Oncol. 2019;58(2):135-146.
17. Sokolova A, Johnstone KJ, McCart Reed AE, Simpson PT, Lakhani SR. Hereditary breast cancer: Syndromes, tumour pathology and molecular testing. Histopathology. 2023;82(1):70-82.
18. Economopoulou P, Dimitriadis G, Psyrri A. Beyond BRCA: New hereditary breast cancer susceptibility genes. Cancer Treat Rev. 2015; 41(1):1-8.
19. Calabrese A, von Arx C, Tafuti AA, Pensabene M, De Laurentiis M. Prevention, diagnosis and clinical management of hereditary breast cancer beyond *BRCA1*/2 genes. Cancer Treat Rev. 2024;129:102785.
20. National Comprehensive Cancer Network. Genetic/familial high-risk assessment: Breast, Ovarian Pancreatic and Prostate (version 2.2025) [Internet]. National Comprehensive Cancer Network. Available from URL: https://www.nccn.org/professionals/physician_gls/pdf/genetics_bopp.pdf
21. Oliver J, Quezada Urban R, Franco Cortés CA, Díaz Velásquez CE, Montealegre Paez AL, Pacheco-Orozco RA, et al. Latin American study of hereditary breast and ovarian cancer LACAM: A genomic epidemiology approach. Front Oncol. 2019:9:1429.
22. Narod SA, Rodríguez AA. Predisposición genética para el cáncer de mama: genes *BRCA1* y *BRCA2*. Salud Publica Mex. 2011; 53(5):420-9. Available from URL: https://www.scielosp.org/pdf/spm/v53n5/a10v53n5.pdf
23. McDevitt T, Durkie M, Arnold N, Burghel GJ, Butler S, Claes KBM, et al. EMQN best practice guidelines for genetic testing in hereditary breast and ovarian cancer. Eur J Hum Genet. 2024;32(5):479-488. Erratum in: Eur J Hum Genet. 2024 Aug 2.
24. Kiser D, Elhanan G, Bolze A, Neveux I, Schlauch KA, Metcalf WJ, et al. Screening familial risk for hereditary breast and ovarian cancer. JAMA Netw Open. 2024;7(9):e2435901.
25. LaDuca H, Polley EC, Yussuf A, Hoang L, Gutierrez S, Hart SN, et al. A clinical guide to hereditary cancer panel testing: Evaluation of gene-specific cancer associations and sensitivity of genetic testing criteria in a cohort of 165,000 high-risk patients. Genet Med. 2020; 22(2):407-415.
26. Villarreal-Garza C, Weitzel JN, Llacuachaqui M, Sifuentes E, Magallanes-Hoyos MC, Gallardo L, et al. The prevalence of *BRCA1* and *BRCA2* mutations among young Mexican women with triple-negative breast cancer. Breast Cancer Res Treat. 2015;150(2):389-94.
27. Zugazagoitia J, Pérez-Segura P, Manzano A, Blanco I, Vega A, Custodio A, et al. Limited family structure and triple-negative breast cancer (TNBC) subtype as predictors of BRCA mutations in a genetic counseling cohort of early-onset sporadic breast cancers. Breast Cancer Res Treat. 2014;148(2):415-21.
28. Fragoso-Ontiveros V, Velázquez-Aragón JA, Nuñez-Martínez PM, de la Luz Mejía-Aguayo M, Vidal-Millán S, Pedroza-Torres A, et al. Mexican *BRCA1* founder mutation: Shortening the gap in genetic assessment for hereditary breast and ovarian cancer patients. PLoS One. 2019;14(9):e0222709.
29. Manna EDF, Serrano D, Aurilio G, Bonanni B, Lazzeroni M. Quimioprevención y modificaciones del estilo de vida para la reducción del riesgo de cáncer de mama esporádico y hereditario. Asistencia sanitaria (Basilea). 2023; 11(16):2360. h
30. Phoosuwan N, Lundberg PC. Psychological distress and health-related quality of life among women with breast cancer: A descriptive cross-sectional study. Support Care Cancer. 2022;30(4):3177-3186.
31. Brandão T, Schulz MS, Matos PM. Psychological adjustment after breast cancer: A systematic review of longitudinal studies. Psychooncology. 2017;26(7):917-926.
32. Zhou K, Ning F, Wang X, Wang W, Han D, Li X. Perceived social support and coping style as mediators between resilience and health-related quality of life in women newly diagnosed with breast cancer: a cross-sectional study. BMC Womens Health. 2022;22(1):198.
33. Champion VL, Wagner LI, Monahan PO, Daggy J, Smith L, Cohee A, et al. Comparison of younger and older breast cancer survivors and age-matched controls on specific and overall quality of life domains. Cancer. 2014;120(15):2237-46.
34. Manne S, Kashy DA, Siegel S, Myers Virtue S, Heckman C, Ryan D. Unsupportive partner behaviors, social-cognitive processing, and psychological outcomes in couples coping with early stage breast cancer. J Fam Psychol. 2014;28(2):214-24.
35. Galindo-Vázquez O, Núñez Gómez P, Vidal Millán S, Bargalló Rocha E, Lerma A, Sánchez Contreras Y, et al. Evidencia psicométrica del Cuestionario sobre la Salud del Paciente (PHQ-9) y Escala de Ansiedad Generalizada (GAD-7) en pacientes con asesoramiento genético en Oncología. Psicooncología. 2023;20(2):267-81.
36. Ramírez-Orozco M, Rojas-Russell ME, Galindo-Vázquez O, Robles-García R, Costas-Muñiz R, Bargalló-Rocha JE, et al. Concerns about cancer recurrence in Mexican women breast cancer survivors: Psychometric properties of the CARS scale. Cienc Psicol. 2023;17(1):e2777. Available from URL: http://www.scielo.edu.uy/scielo.php?script=sci_arttext&pid=S1688-42212023000101212

37. Galindo-Vazquez O, Benjet C, Cruz-Nieto MH, Rojas-Castillo E, Riveros-Rosas A, Meneses-Garcia A, et al. Psychometric properties of the Zarit Burden Interview in Mexican caregivers of cancer patients. Psychooncology. 2015;24(5):612-5.
38. Núñez Hernández J, Galindo Vázquez O, Penedo FJ, Calderillo Ruiz G, Meneses García A, Herrera Gómez Á, et al. Propiedades psicométricas del Inventario de Afrontamiento COPE Breve en una muestra de cuidadores primarios informales de pacientes con cáncer en población mexicana. Psicol Salud. 2021;31(1):143-53. Available at: https://psicologiaysalud.uv.mx/index.php/psicysalud/article/view/2684
39. Wieland S, Melton S, Bastounis A, Carter T. The effectiveness of cognitive behavioural therapy for depression in women with breast cancer: A systematic review and meta-analysis. Behav Cogn Psychother. 2024;52(4):394-413.
40. Olsson Möller U, Beck I, Rydén L, Malmström M. A comprehensive approach to rehabilitation interventions following breast cancer treatment - a systematic review of systematic reviews. BMC Cancer. 2019;19(1):472.
41. Ramírez-Parada K, Garay-Acevedo D, Mella-Abarca W, Petric-Guajardo M, Sánchez-Rojel C, McNeely ML, et al. Axillary web syndrome among Chilean women with breast cancer: Incidence and possible predisposing factors. Support Care Cancer. 2020;28(6):2941-2947.
42. Ryans K, Davies CC, Gaw G, Lambe C, Henninge M, VanHoose L. Incidence and predictors of axillary web syndrome and its association with lymphedema in women following breast cancer treatment: A retrospective study. Support Care Cancer. 2020;28(12):5881-5888.
43. Baggi F, Nevola Teixeira LF, Gandini S, Simoncini MC, Bonacossa E, Sandrin F, et al. Axillary web syndrome assessment using a self-assessment questionnaire: A prospective cohort study. Support Care Cancer. 2018;26(8):2801-2807.
44. Koehler LA, Hunter DW, Blaes AH, Haddad TC. Function, shoulder motion, pain, and lymphedema in breast cancer with and without axillary web syndrome: An 18-month follow-up. Phys Ther. 2018;98(6):518-527.
45. Koehler L, Day A, Hunter D, Blaes A, Haddad T, Shanley R. Five-year cumulative incidence of axillary web syndrome and comparison in upper extremity movement, function, pain, and lymphedema in survivors of breast cancer with and without axillary web syndrome. Arch Phys Med Rehabil. 2022;103(9):1798-1806.
46. Bentzen SM, Dische S. Morbidity related to axillary irradiation in the treatment of breast cancer. Acta Oncol. 2000;39(3):337-47.
47. de Sire A, Losco L, Cisari C, Gennari A, Boldorini R, Fusco N, et al. Axillary web syndrome in women after breast cancer surgery referred to an Oncological Rehabilitation Unit: Which are the main risk factors? A retrospective case-control study. Eur Rev Med Pharmacol Sci. 2020;24(15):8028-8035.
48. Bhatia S, Pappo AS, Acquazzino M, Allen-Rhoades WA, Barnett M, Borinstein SC, et al. Adolescent and Young Adult (AYA) Oncology, Version 2.2024. J Natl Compr Canc Netw. 2023;21(8):851-880.
49. Runowicz CD, Leach CR, Henry NL, Henry KS, Mackey HT, Cowens-Alvarado RL, et al. American Cancer Society/American Society of Clinical Oncology Breast Cancer Survivorship Care Guideline. J Clin Oncol. 2016;34(6):611-635.
50. Kozubek P, Wołoszczak J, Gomułka K. Immune reactions in major types of oncological treatment. Int J Mol Sci. 2023;24(14):11257.
51. McNeely ML, Binkley JM, Pusic AL, Campbell KL, Gabram S, Soballe PW. A prospective model of care for breast cancer rehabilitation: Postoperative and postreconstructive issues. Cancer. 2012;118(8 Suppl):2226-2236.
52. Marco E, Trépanier G, Chang E, Mauti E, Jones JM, Zhong T. Postmastectomy functional impairments. Curr Oncol Rep. 2023;25(12):1445-1453.
53. Jimenez RB, Packowski K, Horick N, Chinta S, Koh DJ, Sobti N, et al. The timing of acute and late complications following mastectomy and implant-based reconstruction. Ann Surg. 2023;278(1):e203-e208.
54. Friedrich M, Krämer S, Friedrich D, Kraft C, Maass N, Rogmans C. Difficulties of breast reconstruction - Problems that no one likes to face. Anticancer Res. 2021;41(11):5365-5375.
55. Agostini F, Attanasi C, Bernetti A, Mangone M, Paoloni M, Del Monte E, et al. Web axillary pain syndrome—Literature evidence and novel rehabilitative suggestions: A narrative review. Int J Environ Res Public Health. 2021;18(19):10383.