



IMPACT OF YOGA ON QUALITY OF LIFE OF BREAST CANCER PATIENTS UNDERGOING CHEMOTHERAPY AND RADIOTHERAPY

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ABSTRACT :

This paper presents the importance of yoga and pranayama which have the positive impact on quality of life of breast cancer patients those who are undergoing chemotherapy and radiotherapy for a healthy life with regular practice. Pranayama and yoga is not an alternative cure of any such life threatening disease but a precautionary measure to keep many such diseases. Pranayama is one such way of lifestyle that our ancestors have given us. Basically, Quality of life (QoL) has emerged as a critical metric in various aspects of healthcare, including clinical trials, cost-effectiveness analysis, and clinical practice. This shift in focus can be attributed to several factors such as the escalating healthcare expenditures, growing concerns regarding the reported low QoL among psychiatric patients living in the community, and a growing realization that conventional treatment measures are insufficient. Chemotherapy refers to the use of drugs (chemical agents) to treat cancer. These drugs can be administered orally or intravenously and circulate throughout the body, reaching both cancerous and healthy cells. Radiotherapy involves the use of high doses of radiation to target and kill cancer cells. It is a localized treatment, meaning it is directed at specific areas of the body where cancer is present. While the method of pranayama respiration is thus intimately linked with the autonomic nervous system and brings its function below conscious manipulate through respiratory practices and movement of diaphragm and lungs. The nasal tissue is erectile and could be very sensitive to respiratory. Control of breath constitutes an apparent starting point toward the attainment of the manager of the autonomic nervous system. It seems to have useful effects on the capabilities of omental adiposities, brain, heart, lungs, liver, and kidney functions. The left nostril, diaphragm, and stomach are provided via the vagus nerve. Few clinical studies have proven that verbalization of mantras can decrease the respiration rate, due to accelerating vagal activity, resulting into increased nitric oxide release while the respiration rate is brought down to much less than six breaths per minute. The yoga and pranayam with lot of practice and regime does help the breast cancer patients undergoing radiotherapy and chemotherapy and combined.



KEYWORDS : Quality of life (QoL), autonomic nervous system, diaphragm and stomach.

INTRODUCTION:

A diagnosis of cancer can be devastating, and deciding on the appropriate treatment can be complicated and daunting. Patients are asked to consider factors that include mortality from the disease and the potential for acute and chronic morbidity from the treatment (Shrestha A et.al 2019). Appropriate decision making requires satisfactory patient understanding of these treatment choices, which includes the potential benefits and harms. (Katz SJ et.al 2005) The primary focus of cancer treatment has always been to increase overall and disease free survival; however, quality of life (QOL) has been increasingly recognized as an important end point (Khan FA et.al 2005). Although there is an instinctive understanding of the term "quality of life," there are multiple definitions, which gives testimony to the fact that it is a complex concept with many diverse facets and components. The standard dimensions used in QOL questionnaires measure the presence or absence of specific symptoms or overall general health. They do not measure patients' beliefs or attitudes toward treatment and intervention outcomes. Decision making in a cancer setting can be a difficult process due to its multifaceted nature. The patients' outlook and beliefs are paramount, but this is heavily influenced by their own experiences and those of friends and family. In addition, current QOL and physical status can affect subsequent decision.

QUALITY OF LIFE

Quality of life (QOL) has emerged as a critical metric in various aspects of healthcare, including clinical trials, cost-effectiveness analysis, and clinical practice. This shift in focus can be attributed to several factors such as the escalating healthcare expenditures, growing concerns regarding the reported low QOL among psychiatric patients living in the community, and a growing realization that conventional treatment measures are insufficient. Consequently, there is a pressing need to assess and enhance QOL for individuals dealing with mental illness. However, the methods for integrating clinical data with clients' perceptions and treatment goals lack standardization. Moreover, there are notable variations in the perceived importance of different QOL domains. Clinicians, families, and clients themselves may hold diverse perspectives on what constitutes good QOL and the vital objectives of therapy. QOL is inherently subjective, and its definition can vary depending on the specific population being studied. Generally, it is conceptualized as a multidimensional construct encompassing distinct domains, including physical health, psychological well-being, social relationships, functional roles, and the subjective sense of life satisfaction. Each of these QoL domains can be evaluated from the viewpoints of clinicians, clients, or caregivers. Furthermore, the relative importance assigned to each domain can differ significantly from one observer to another. This complexity underscores the need for a nuanced and flexible approach when assessing and improving QoL in individuals with mental health challenges.

CHEMOTHERAPY

Chemotherapy is a widely recognized and commonly used treatment approach in the field of oncology. It plays a significant role in the management and treatment of various types of cancer. Chemotherapy utilizes powerful medications to target and destroy cancer cells, either by directly attacking them or by inhibiting their growth and division. This chapter aims to provide a comprehensive understanding of chemotherapy, its mechanisms of action, its side effects, and its role in cancer treatment. (Ethan D. Anderson 2005)

Mechanism of Action: Chemotherapy drugs work by disrupting the cell cycle, which is the process of cell growth and division. They target rapidly dividing cells, including cancer cells. However, because they can affect normal cells as well, side effects like hair loss, nausea, and immune system suppression are common.

Types of Chemotherapy: There are various types of chemotherapy drugs, and they may be used alone or in combination. The choice depends on the type of cancer, its stage, and the patient's overall health.

RADIOTHERAPY (RADIATION THERAPY):

Radiotherapy involves the use of high doses of radiation to target and kill cancer cells. It is a localized treatment, meaning it is directed at specific areas of the body where cancer is present.

Mechanism of Action: Radiation damages the DNA inside cells, preventing them from dividing and growing. Cancer cells are particularly sensitive to radiation, and the goal is to destroy or damage them while minimizing harm to nearby healthy cells.

Delivery of Radiation: Radiation can be delivered externally (external beam radiation) or internally (brachytherapy). External beam radiation is administered from outside the body, while brachytherapy involves placing radioactive sources directly inside or very close to the tumor (**National Cancer Institute**)

Side Effects: Common side effects of radiotherapy include fatigue, skin changes at the treatment site, and, depending on the location, potential damage to nearby healthy tissues.

COMBINATION THERAPY:

In many cases, chemotherapy and radiotherapy are used together as part of a comprehensive treatment plan. This approach is often employed to enhance the effectiveness of treatment and address cancer from different angles.

It's important to note that the choice of treatment depends on the type of cancer, its stage, the patient's overall health, and other individual factors. Decisions about cancer treatment are typically made by a multidisciplinary team of healthcare professionals.

METHODOLOGY

There were yogic asanas and pranayam which includes Sukshma Vyayama, Tadasana, Tiriyaka Tadasana, Katichakrasana, Padadhiraasana, Gomukhasana, Shavasana, Nadishodhan Pranayam, Ujjayi pranayam, Bhramari Pranayam, Hridaya mudra and om chanting meditation which was followed by the cancer patients according to the number of days and repetitions on different yogic asanas and pranayams.

MATERIALS AND METHODS

Selection of Subjects

Patients were evaluated according to the inclusion (age between 30-65 years, stage II/III, undergoing radiotherapy and/or chemotherapy, fit for yogic interventions) and exclusion criteria (pregnant females, suffering from major gynecological disorder, second malignancy, on other alternative medicine, not willing to participate in the study, co-morbid illness like a cardiac disease, hepatic disorder, older than 65 years). Patients were enrolled after providing written information consent. Sample size was calculated using the prevalence (**GLOBOCAN 2020**), error, degree of freedom. Calculated sample size was 42 and 15% extra has been taken for dropouts. Therefore, final sample size in each group is 48. A total of 96 stage II/III breast cancer patients undergoing chemotherapy and/or radiotherapy were enrolled from the outpatient department (OPD) of Endocrine Surgery and Surgery. Patients were equally divided using the double-blind (envelop-based) randomization method into two groups. Group I (non-yoga) patients received only conventional treatment (chemotherapy and/or radiotherapy) whereas Group II (yoga) received additional yogic intervention five days/week for 48 weeks. We measured the levels of oxidative stress markers SOD, CAT, MDA, NO, and inflammatory cytokines TNF- α , IFN- γ , and GM-CSF along with the quality of life and symptomatic scale questionnaires at different time points (baseline, 16, 32, and 48 weeks) in both groups.

Yoga workout routines have a holistic impact and convey body, mind, recognition and soul into balance. Yoga is very useful for strengthening all the system of the body. Impact of pranayama and asana on human body system is expansive and eternal. Pranayama is a completely unique approach of regulation of breathing cycle. Since respiration is under control of volition and it's an automatic act. It

may be precisely altered although within limits. We can change the frequency and the amplitude. (Sengupta P. 2012)

We can breathe through 3 openings i.e. mouth, left and right both nostril and different combinations in many ways.

Pranayama can be categorized into different types depending on the frequency, degree of depth used, forms of openings used and accompanying physical manipulations. We are privileged that five thousand years ago our ancestors thought of altering breathing patterns in very exactly medical manner. The knowledge about some types of pranayama is common place knowledge such as anulom-vilom pranayama, right nostril breathing and left nostril breathing.

1. Nadishodhan Pranayama (Alternate Nostril Breathing):

Nadishodhan Pranayama, also known as alternate nostril breathing, is a calming and balancing pranayama practice. To perform it: Sit comfortably in a cross-legged position or on a chair with your spine straight and shoulders relaxed. Rest your left hand on your left knee with the palm facing up, using the Gyan Mudra (touching the tip of the index finger to the tip of the thumb).

Use your right thumb to close your right nostril and your right ring finger to close your left nostril. Close your eyes and take a deep breath in through both nostrils. Close your right nostril with your thumb, exhale slowly through your left nostril. Inhale deeply through your left nostril. Close your left nostril with your ring finger, release your right nostril, and exhale through your right nostril. Continue this pattern, alternating between inhaling and exhaling through each nostril. This completes one round.

2. Ujjayi Pranayama (Victorious Breath):

Ujjayi Pranayama, often referred to as the "ocean breath" due to its soothing sound, is known for its calming and warming effects. Here's how to practice it: Sit in a comfortable meditative posture with your spine erect and shoulders relaxed. Inhale deeply through your nose while slightly constricting the back of your throat, creating a gentle, ocean-like sound. Exhale slowly and audibly through your nose, maintaining the throat constriction. Continue this deep, slow, and controlled breathing pattern.

3. Bhramari Pranayama (Humming Bee Breath):

Bhramari Pranayama is a soothing pranayama technique that involves creating a humming sound while breathing. Here's how to practice it: Sit comfortably in a quiet place with your spine straight and shoulders relaxed. Close your eyes and take a few deep breaths to relax. Place your index fingers on your ears' cartilage to close them gently. Inhale deeply through your nose. Exhale slowly and steadily while making a low-pitched humming sound, like a bee. Feel the vibrations of the sound reverberate in your head and chest. Continue for several breath cycles.

These pranayama techniques can be integrated into your daily yoga and meditation practice to experience their myriad benefits and promote overall well-being. However, it's essential to learn these techniques from a qualified yoga instructor, especially if you're new to pranayama, to ensure proper guidance and safety.

1. Sukshma Vyayama:

Sukshma Vyayama is a series of subtle, gentle exercises designed to warm up the body and prepare it for more intense yoga or physical activities. These movements focus on loosening joints, improving flexibility, and increasing blood circulation. Technique: Sukshma Vyayama includes various movements such as neck rotations, shoulder rotations, wrist rotations, ankle rotations, knee bends, and hip rotations. Here's a basic routine: Neck rotations: Slowly and gently move your head in a circular motion, both clockwise and counterclockwise. Shoulder rotations: Roll your shoulders forward and backward in a circular motion. Wrist rotations: Rotate your wrists in both directions.

Ankle rotations: Rotate your ankles to the left and right. Knee bends: Bend and straighten your knees while standing in place. Hip rotations: Move your hips in circular motions.

2. Tadasana (Mountain Pose):

Tadasana is a fundamental yoga pose that serves as the foundation for many other asanas. It focuses on improving posture, alignment, and balance. Technique: To perform Tadasana: Stand with your feet together, heels slightly apart, and toes touching. Engage your thigh muscles and tuck in your tailbone, ensuring your legs are straight. Keep your arms relaxed by your sides with palms facing forward. Lengthen your spine, lifting your chest and rolling your shoulders back and down. Gaze straight ahead, keeping your neck in line with your spine. Breathe deeply and evenly, holding the pose for 30 seconds to a minute.

3. TiryakaTadasana (Swaying Palm Tree Pose):

TiryakaTadasana is a standing yoga pose that involves lateral bending of the spine, promoting flexibility and balance. Technique: To perform Tiryaka Tadasana: Begin in Tadasana (Mountain Pose). Inhale and raise your arms overhead, interlocking your fingers with palms facing upward. Exhale and slowly bend your upper body to the right side while keeping your feet firmly planted. Feel the stretch along the left side of your body. Inhale and return to the center. Exhale and repeat the bend to the left side. Continue to sway gently from side to side, inhaling and exhaling with each movement. Release the pose after several repetitions.

4. Katichakrasana (Standing Spinal Twist):

Katichakrasana is a standing yoga pose that involves a twisting motion of the spine. It helps in improving spinal flexibility and digestive function. Technique: To perform Katichakrasana: Stand with your feet hip-width apart and arms extended at shoulder height, parallel to the ground. Inhale deeply. Exhale and twist your torso to the right, bringing your left hand to your right shoulder and your right hand to your lower back. Gaze over your right shoulder. Inhale as you return to the center. Exhale and twist your torso to the left, reversing the hand positions. Continue to alternate sides for several breaths. Release the pose and relax.

5. Padadhirasana (Toe Tapping):

Padadhirasana is a simple exercise that involves tapping the toes while seated. It is commonly used as a warm-up or part of Sukshma Vyayama. Technique: To perform Padadhirasana: Sit comfortably on the ground with your legs extended in front of you and your hands resting on the ground beside your hips. Keep your spine straight and shoulders relaxed. Lift your right foot slightly off the ground. Begin tapping your right toes on the floor in a rhythmic manner. After tapping for a few seconds, switch to your left foot. Continue alternating between your right and left foot for 1-2 minutes.

6. Gomukhasana (Cow Face Pose):

Gomukhasana is a seated yoga pose that focuses on stretching and opening the shoulders and hips. It is named after the resemblance of the arms to a cow's face in this pose. To perform Gomukhasana: Begin in a comfortable seated position with your legs extended. Bend your right knee and place your right foot on the floor outside your left hip. Bend your left knee and stack it on top of your right knee, with your left foot outside your right hip. Inhale and extend your right arm out to the side at shoulder height. Exhale and bring your right arm behind your back, reaching your hand up towards your shoulder blades. Inhale and extend your left arm out to the side at shoulder height. Exhale and bring your left arm behind your back, reaching your hand up towards your upper back. Try to clasp your fingers together behind your back. If you can't reach, use a strap or hold a cloth in each hand. Lift your chest and gently draw your elbows toward each other. Hold the pose for 30 seconds to 1 minute while breathing deeply. Release the arms and gently unwind the legs. Repeat the pose on the other side.

These exercises and yoga poses offer a range of physical and mental benefits, including improved flexibility, posture, and relaxation. Always practice with awareness of your body's limitations and consult a qualified yoga instructor or healthcare professional if you have any concerns or medical conditions.

Hridaya Mudra (Heart Gesture):

Hridaya Mudra is a hand gesture used in meditation and yoga to promote a sense of peace, love, and connection with the heart center. It is believed to help balance emotions and open the heart chakra. Here's how to perform Hridaya Mudra: **Technique:** Find a comfortable seated or meditative posture. You can sit on the floor with your legs crossed or in a chair with your feet flat on the ground, ensuring your spine is straight and your shoulders are relaxed. Bring your hands together at chest level, with your palms facing each other. Extend your pinky fingers and thumbs outward, creating a heart shape with your hands. Keep your other fingers relaxed and gently touching each other. Close your eyes and take deep, slow breaths, focusing on your heart center. **Meditation with Hridaya Mudra:** Once you have assumed the Hridaya Mudra, you can practice a heart-centered meditation: Breathe deeply and consciously, directing your breath into your heart center. As you inhale, imagine a bright, loving light entering your heart. As you exhale, visualize any negativity, stress, or tension leaving your heart. Feel your heart center expanding with each breath, radiating love and compassion. You can silently repeat affirmations such as "I am love" or "I am at peace" during this meditation. Continue this meditation for as long as you like, gradually deepening your connection to your heart and its qualities.

Hridaya Mudra and this heart-centered meditation can help you cultivate a sense of love and compassion for yourself and others while reducing stress and promoting emotional balance.

Om Chanting Meditation: Om (pronounced "Aum") is considered a sacred sound and symbol in various spiritual traditions, including Hinduism and Buddhism. It is believed to be the primordial sound of the universe and represents the ultimate reality or consciousness. Chanting "Om" can have a profound meditative and vibrational effect on the practitioner. Here's how to practice an Om chanting meditation: Find a quiet and comfortable place to sit or lie down. You can use a cushion or chair for support. Close your eyes and take a few deep, cleansing breaths to relax your body and mind. Begin to chant "Om" slowly and melodiously. You can chant it as a single continuous sound (A-U-M) or as three separate syllables. Focus your attention on the sound and vibration of "Om" as you chant it. Feel the resonance in your throat, chest, and head. Continue chanting for as long as you like, maintaining a steady and rhythmic pace. You can use a mala (prayer beads) to keep track of repetitions if you prefer.

As you chant, let go of distractions and immerse yourself in the sound. Allow it to resonate throughout your being. When you're ready to conclude the meditation, gradually reduce the volume and speed of your chanting until it fades away. Sit quietly for a few moments, bask in the sense of inner calm, and observe any subtle shifts in your consciousness.

CONCLUSION

With the current research which is already in progress and reviews collected by the researcher there are several studies which claims that the yoga asanas and pranayams have definite effect on the cancer patients undergoing chemotherapy and radiotherapy .In essence, this review suggests that mind-body exercises like pranayama combine prolonged physical engagement with a directed inward focus, resulting in a transient state of introspective contemplation. Pranayama practices contribute to expanding lung capacity and promoting the opening of all body tissues and cells. They extend the duration of breath cycles, ultimately bolstering immunity and fostering a longer, healthier life. Furthermore, Pranayama appears to activate neurohormonal processes that yield notable health advantages, as demonstrated by the reduction of sympathetic nervous system activity. This integrated approach to physical and mental well-being underscores the potential holistic benefits of pranayama exercises.

It's important to note that while yoga can be beneficial for breast cancer patients, it should be practiced under the guidance of a qualified instructor or therapist who is experienced in working with cancer patients. Individual needs and abilities vary, and modifications may be necessary to ensure safety and comfort during yoga practice. Additionally, yoga should complement, not replace, conventional medical treatments. Patients should consult with their healthcare team to integrate yoga into their overall treatment plan and ensure that it aligns with their specific medical circumstances.

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