



Received on 15th February, 2020; Received in revised form 28th May, 2020; Accepted on 19th June, 2020

DEPRESSION IN CANCER PATIENTS

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Keywords:

*Depression, Cancer,
Psychological Distress,
Psychotherapy,
Chemotherapy,
Radiotherapy.*

Abstract:

Depression is a major psychiatric disorder producing non-pathological sadness and stress. Depression has a major negative impact on patients and their family member's also. Overlapping of depressive symptoms with physical symptoms makes the diagnosis even more challenging. In biological mechanism, damage-associated molecular patterns (DAMPs) on damaged tissue bind to pattern recognition receptors (PRRs) on leukocytes, causing expression of transcription factor nuclear factor- κ - β (NF κ β) and production of numerous pro-inflammatory cytokines, including interleukin-1 (IL-1), interferon- α (INF- α), IL-6 and tumor necrosis factor (TNF). Some studies have reported delayed stress, addressing the need of mental health counseling throughout a continuum of care. Psychotherapy, in combination with antidepressant medications, and communication skills can act as a central component of patient care on the basic principle of physical, psychological, social and spiritual palliative care.

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INTRODUCTION

Cancer is a life threatening disease causing a normal, albeit painful emotional reaction like depression.¹ Life becomes miserable in 20-25% of cancer patients, with this unrecognized long term problem.² Depression is a major psychiatric disorder producing non-pathological sadness and stress. The basic biological mechanisms behind this include tissue damage and inflammatory mediator's

provocation.³ Overall prevalence rate of depression has been observed up to 18 percent, though gender related difference in prevalence and severity have not been adequately evaluated.⁴

Depression has a major negative impact on patients and their family member's also.⁵ Inadequate management of the symptoms might hamper the quality of life and individualized

performance of the patient which can be assessed by different therapeutic quality of life assessment tools.⁶

The basic reason for inadequate management of the quality of life is failure of detection of symptoms of psychological distress because of lack of time, screening and knowledge to diagnose the symptoms.⁷ Prolonged hospital stays, increased physical distress, low quality of life and increased desire for hastened death are basic etiology of depression.⁸

Overlapping of depressive symptoms with physical symptoms makes the diagnosis even more challenging. Depression explains its clinical presentation in the form of sadness, helplessness, suicidal ideation, lack of confiding relationship and neuroticism personality type etc.⁹

Physical exercises are safe, non-pharmacological and cost-effective therapy that

can provide several health benefits in cancer patients and survivors, including reduction in cancer symptoms and treatment related side effects, especially mood related symptoms.¹⁰

REVIEW OF LITERATURE

Jafari et al conducted a systematic review by cross sectional study in Iran and found that the women with breast cancer of age group 43.8-55.9 years were suffering more with mild depression, explaining the need of preventive and therapeutic measures to improve the mental health and quality of life of such patients.¹¹

Ryder et al explored prevalence of depression in cancer patients across the regions of different cultural backgrounds and conceptualized that the bio-psychiatric model of mental illness and western psychologization explains the higher prevalence in western regions.¹²

Prevalence of depression in cancer patients according to region		
<i>Sr no.</i>	<i>Region</i>	<i>Prevalence</i>
1.	Asia	3-39%
2.	Middle East	0-57%
3.	Europe	7-72%
4.	North America	6-51%
5.	Australia	4-43%

Burgess et al explained the prevalence of risk factors for depression and anxiety in women with early breast cancer, five years after diagnosis. They assessed 222 women in observational cohort study design by psychiatric interview method, with standardized diagnostic criteria and Bed Ford College events and difficulties schedule. The study found increased level of depression and anxiety in first year of diagnosis in early breast

cancer patients and thus highlighting the need of dedicated service provision during this time.¹³

ETIOLOGY

Pitman et al explained that the psychiatric illnesses such as depression and anxiety are very common, affecting up to 20% of cancer patients. The study found that poor compliance to treatment, survival and treatment costs are the causes of depression,

which may increase the risk of suicide in patients with cancer.¹⁴

Zafari et al performed a systematic review of English and Persian databases on female breast cancer patients and observed factors such as prolonged treatment, frequent admission and side effects of radiation therapy and chemotherapy as the usual causative factors. Other factors such as fear of mastectomy and loss of attractiveness, physical impairment and mental health disorder also contributed. Feelings of altered physical abilities, lack of competence, and lower self-esteem in affected people, culture and ethnicity, low income, pain and quality of life associated with health could be associated with causation of depression.¹¹

PATHOGENESIS

Depression in cancer is a multifactorial disorder having psychosocial, biological and even iatrogenic etiology; resulting from stress because of changes in life, leading to a persistently low mood, despair, anhedonia and feeling of hopelessness. In biological mechanism, damage-associated molecular patterns (DAMPs) on damaged tissue bind to pattern recognition receptors (PRRs) on leukocytes, causing expression of transcription factor nuclear factor- κ - β (NF κ β) and production of numerous pro-inflammatory cytokines, including interleukin-1 (IL-1), interferon- α (INF- α), IL-6 and tumor necrosis factor (TNF). During stress, sympathetic nervous system (SNS) is stimulated, parasympathetic nervous system (PSNS) is inhibited and hypothalamic-pituitary-adrenal (HPA) axis is activated. Ionizing radiation increase inflammatory mediator expression leading to downstream release of endogenous glucocorticoids; the anti-inflammatory effect

of glucocorticoids is therefore attenuated, and cytokine expression is increased.¹⁵

Pasquini et al discussed recent data on detection of depressive disorders, biological correlates, treatments and un-assessed requirements of depressed cancer patients to understand the psycho-neuro-immunological mechanisms and biological alterations in breast cancer patients in relation to psychological status, and survival and impact the course of the disease and compliance.¹⁶

Only one randomized controlled study showed that in lung cancer patients, levels of omega-3 fatty acid are associated with minor (but not major) depression, psychiatric diagnosis was made using HADS.¹⁷

Yoshikawa et al observed cerebral functional alterations similar to those found among primary depression patients. Using PET data in 51 cancer survivors, they reported an alteration in amygdala volume was associated with depressed mood.¹⁸

MANAGEMENT

Zebrack et al identified the trajectories of clinically significant level of distress throughout first year following diagnosis by assessing 215 adolescent and young adult cancer patients at 4th months, 6th months and 12th months, on the basis of distress score. The study showed that 12% cases reported significant chronic distress while 15% cases reported delayed stress, addressing the need of mental health counseling throughout a continuum of care.¹⁹

Linde et al investigated the effect of extracts of *Hypericum Perforatum* (St. John's wort) in the treatment of depression, by meta-analysis of 23 randomized trials including a total of 1757 patients. The report suggests

positive results with use of such extract for treatment of depression.²⁰

van Oers explained the physiological and psychological effects of physical exercises positively influencing the mood in breast cancer patients with depression by including walking, low intensity aerobic exercises, breathing techniques and meditation in few specific postures duly considering their all possible contraindications.²¹

Mustian et al explained different type of aerobic exercises, resistance exercises, and combined aerobic and resistance exercises during and following the cancer treatment to reduce its acute and chronic side effects and thus preparing the patient to successfully complete the treatment.²²

Pyszora et al evaluated the effect of physiotherapy program on cancer related depression and fatigue in 60 patients, with 30 minutes physiotherapy session of active exercises, myofascial release and proprioceptive neuro-facilitation technique. The outcomes of study by Brief Fatigue Inventory (BFI) and Edmonton Symptoms Assessment Scale (ESAS) were satisfactory, suggesting its role in improved general well-being and fatigue symptoms in cancer patients.²³

Billhult et al examined the usefulness of massage therapy in reduction of nausea and anxiety indirectly related to depression, in 39 female patients (mean age 51.8 years) with breast cancer and introduced the significant role of Massage treatment in reduction in nausea in cancer population.²⁴

Kumar explained five mechanisms of sensitization which work on pain in cancer patients and suggested that effective palliative physiotherapy care be given, suiting each patient's findings, using bio psycho social model of the pain.²⁵

Yagli et al investigated the effects of yoga on mood, physical appearance and performance level in patients with breast cancer (n=20, age 30-50 years) after conducting physiotherapy assessment. The therapeutic protocol included total of 8 sessions of yoga with warming and breathing exercises, *Asanas*, meditation and relaxation in supine positions. The results showed a valuable role of yoga to achieve relaxation and reducing the stress and depression level in such patients.²⁶

Atalay et al investigated the effects of phase I complex decongestive physiotherapy (CDP) on physical functions and depression levels in 58 female subjects with cancer related upper extremity lymphedema. The results were supportive only in reference to depression level and circumference measurement while difference in muscle strength was statistically non-significant. Thus, the study showed that complex decongestive physiotherapy can affect psychological status.²⁷

Kwiatowski et al introduced the concept of long term improved quality of life (QOL) and mood in depression patients by a 2 week program of physical and educational interventions (physical training, dietary education and physiotherapy); in 251 non-metastatic cancer patients. Quality of life (QOL) and mood were evaluated with SF 36 questionnaire, performed shortly after chemotherapy. Conclusion was that a 2-week intervention in hydrothermal centers could significantly improve breast cancer patient's depression, reduce weight and thus improve quality of life.²⁸

Eyigor et al investigated the impact of Pilates exercises on physical performance, depression and quality of life; in a randomized control trial over 52 female patients with breast cancer. Outcome measures were

assessed by different clinical tests like 6 minute walk test, modified sit and reach test, Brief Fatigue Inventory, Beck Depression Index and the European Organization for Research and Treatment of Cancer Quality of Life- C30 and EORTCQLQ BR23. The results interpreted that the Pilates exercises are effective and safe in improving physical performance, depression and quality of life.²⁹

Antoni et al tested the effects of 10 weeks group cognitive behavioral stress management interventions among 100 female patients, newly treated for early breast cancer and explained the positive impact on generalized optimism, growth and appreciation of life with minimal or no depression.³⁰

Hopko explained the role of cognitive behavior therapy among cancer patients with

diagnosed depression in medical setting. Depression was associated with disturbed quality of life and recreational and physical performance. Results were positive in response, excellent patient compliance, perfect treatment integrity and satisfaction with the treatment protocol. The gain in all parameters were also found to be maintained even at a follow up of 3 months.³¹

Bausewein et al highlighted 7 different aspects of care for emergencies of depression in adult patients with incurable cancer. Psychotherapy, in combination with antidepressant medications, and communication skills can act as a central component of patient care on the basic principle of physical, psychological, social and spiritual palliative care.³²

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How to cite this article:

Tomar V, Savarna, Choudhary D, Pritam K, Manocha P. Depression in cancer patients: A review. *OncoExpert* 2020;6(2):01-06.