Introduction

Quality-of-life (QoL) is the perception of self-position in one's life in relation to one's surroundings and considers the patients’ own life objectives, goals, anticipations, principles and interests. These extensive thoughts and perceptions combine to make a patient’s bodily state, psychological condition, self-dependence, community relations, self-confidence and ultimately impact on their relationship to their local environment (1). There is no general or agreeable definition for the term elderly, some authors regard 60 years as the point of entry into the category of elderly, while others categorise 65 or 70 and 75 as being the correct figure denoting elderly. The International Society of Geriatric Oncology (SIOG) suggests involving patients aged 70 years or older in the organised and Comprehensive Geriatric Assessment (2). Questionnaires for QoL are subjective and should be fulfilled by the patients themselves. Rating by someone else has shown to be inexact, but sometimes are unavoidable (3).

QoL has been stated by researchers as being one of the tough end-points for clinical research (4). Usage of QoL tools may only be suitable when the treatment objectives are not foreseeable in improving the overall survivability, as in metastatic cancer. The American Society of Clinical Oncology upholds the view that treatment can be given even without survival improvement, as long as it exhibits an improvement in the patient's quality of life (5). National Institutes of Health and the National Cancer Institute concluded that QoL assessment should be part of research studies whenever possible. In addition, it should be noted that patients may prefer to be treated only if improves their quality of life and not necessarily their survivability (6): when patients choose between supportive care and chemotherapy, 22% of the patients prefer chemotherapy for a survivability benefit of 3 months. Reciprocally 68% patients prefer chemotherapy if it essentially improves symptoms, even if no significant effect on survival was achieved. Jacobsen et al. state that an evaluation of QoL can improve relationship between physicians and patients (7).

Our aim in this review is to address QoL assessment importance on elderly breast cancer population who are treated with anticancer modalities.

Discussion

Attempts have been done to approve and validate QoL questionnaires and/or instruments being used on elderly...
cancer patients (5). Functional Assessment of Cancer Therapy General Scale (FACT-G), is one of the most commonly used and validated questionnaire used on elderly cancer patients (8), and has been approved by many authors as being a reliable instrument unaffected and unbiased by the patients’ age (9). Subgroup analysis in elderly patients included in clinical research without upper age limit may lead to a selection bias. In a systematic review of the literature, Hickey et al. identified studies that evaluate QoL in elderly. Thirty-seven studies were identified. In the majority of studies, a generic QoL instrument had been used, most commonly the SF-36. No study used QoL instruments that were old-age specific. Most of the scales were related to physical activity which will decrease with increasing age, comparison between different age groups may be biased (4).

Two important issues take place in cancer management. Firstly is the patient’s well-being which is critical in cancer treatment and secondly is the use of QoL questionnaires in evaluating the patients’ well-being (4,10). We can improve patients’ satisfaction and compliance by sharing their views in the decision making process. Moreover, Sprangers and Schwarz recommended that patient outcomes could be better if QoL questionnaires are used to evaluate and manage functional and psychological problems that have not been thought of previously. Patients who report a good QoL are expected to show better response (11) to treatment. QoL assessment is also recommended in cases where treatment is expected to lead to toxicity, which is very mild or significantly different, and can aid in reaching sensible differentiation between different modalities in the form of QoL (12).

Many retrospective studies stated that elderly cancer patients with breast cancer are less likely to be treated conservatively. The EORTC 10850 randomised trial discussed this issue and analysed patient survivability and QoL in elderly (>70 years) with early breast cancer, two groups of patients were evaluated, one group undergoing mastectomy and the other group undergoing conservative surgery plus tamoxifen. It stated that both groups did not differ in terms of fatigue, social support, emotional health, physical activity, fear of recurrence and leisure time. Moreover, tumour excision plus tamoxifen showed less arm problems and marginal significant advantage in body image. Concluding that conservative treatment is positively associated with better QoL and many authors recommend this approach in older patients (13).

According to current NHS willingness-to-pay thresholds, an extension to screening up to the age of 78 years represents a cost-effective strategy (14). From the moment women are diagnosed with breast cancer, QoL declined heavily. Timely and appropriate follow-up care may prevent QoL drops (15). Older women are alleged to be less tolerance of chemotherapy compared to younger patients. One study found that there is no significant correlation between age and any of the assessed QoL domains or symptom scales, except for dyspnea and sexual functioning (16). ADEBAR trial revealed minimal differences in QoL in breast cancer patients aged less than 65 years versus 65 to 70 years who were receiving adjuvant chemotherapy. The dropout rate found more evidence on those above the 65 age group (17). Elderly breast cancer patients, who underwent first-line endocrine therapy, were associated with prolonged overall survival after high QoL scores (18).

Three years following radiation treatment, the elderly early-stage breast cancer, QoL scores were high in most areas. Moderate limitations occurred in sexual functioning and enjoyment. Axillary node dissection (ALND) patients scored less in their perception of future perspective than sentinel node biopsy (SLNB) or ‘no surgery’ patients groups. ALND patients believed they might have a higher risk of relapse than the other two axillary groups (19). Older patients tended to have a significantly higher quality of life from among breast cancer patients’ who were also undergoing radiation treatment. A lower level of fatigue was noticed among patients ≥71 years of age and those under 50 years. The highest average score for fatigue was registered among those from 61 to 70 years of age. Socio-demographic factors impacted significantly on QoL of breast cancer patients (20). To acquire better quality of life after mastectomy and breast reconstruction, low surgical invasiveness, one-stage procedure, early discharge, rapid recovery, and a prompt return to normal routine activities, are believed mandatory (21).

Utilising the quality of life assessments to stress on a new era of life strategy for elderly breast cancer patients is recommended and a good example of such a life strategy is the introduction of yoga, which was found to be a valuable strategy in diminishing depression, pain, fatigue and contribute to assisting cancer patients in performing their daily and routine activities. Regardless of cancer history, physically inactive women reported significantly worse QoL, complaining mainly of declines in their general health, vitality, and physical function domains. Therefore, interventions to help older women maintain or regain their physical and active lifestyle is advised (22,23).
Across the trials, the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Core Questionnaire (QLQ-C30) and the Breast Cancer-Specific Module (QLQ-BR23), Short Form Health Survey (SF-36), Functional Assessment of Cancer Therapy-Breast Symptom Index (FACT-B-FBSI), the Quality of Life Questionnaire for Cancer Patients Treated with Anticancer Drugs (QOL-ACD), and the Functional Assessment of Chronic Illness Therapy (FACIT) are most commonly QoL instruments used. The Nottingham Health Profile (NHP), Beck Depression Inventory (BDI), the visual analog scale (VAS), and the Interview for Deterioration in Daily Living Activities in Dementia (IDDD) has the effect making the assessment of elderly breast cancer patient more feasible and accurate.

In breast cancer with its diverse features and different nature of its population, it is understood that it is very difficult to find single instrument that can both be sensitive and comprehensive enough to be used for reporting the clinical and significant changes in all outcomes of the different stages of patient care. However, based on Mandelblatt et al. (9) breast cancer's comprehensive meta-analysis and literature of breast cancer outcomes, it is possible to make a set of questions to measure different outcomes. There are methodological limitations addressed in QoL evaluation for elderly patients: (I) illiteracy occurring in higher proportions especially in the elderly. (II) Cognitive disorders and difficulties in understanding QoL questionnaires. (III) Suffering from multiple comorbidities substantially confusing the real effect of malignancy and treatment on QoL. (IV) Use of QoL evaluation requires approval from elderly cancer patients.

**Looking ahead**

QoL has the potential to highlight and tell the physicians more about their patients’ condition and illness whilst ascertaining how treatments may interact with the patient’s QoL. Even with help of QoL, deciding whether an elderly patient is enrolled or not on to cancer treatment is not an easy task. There is a need for a multidisciplinary approach to treating elderly breast cancer patients and for clinical trials including subsets of women. In terms of the risk/benefit ratio of treatment, the performance of a geriatric assessment alongside careful evaluation of comorbidities is the keystone for proposing the best treatment to patients (24). When ‘aging miRNA’ profiles are combined with several aging biomarkers, particularly Interleukin-6 (IL-6) and monocyte chemoattractant protein-1 (MCP-1), patients can be easily clustered into distinctive groups (25).

Further studies and projects are needed to reach the best QoL design questionnaires that are suitable enough for elderly cancer patients.

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**References**

1. WHO, WHOQOL measuring quality of life; 1997:1-15.
2. Extermann M, Aapro M, Bernabei R, et al. Use of comprehensive geriatric assessment in older cancer patients: recommendations from the task force on CGA of the International Society of Geriatric Oncology (SIOG). Crit Rev Oncol Hematol 2005;55:241-52.
3. Addington-Hall J, Kalra L. Who should measure quality of life? BMJ 2001;322:1417-20.
4. Di Maio M, Perrone F. Quality of Life in elderly patients with cancer. Health Qual Life Outcomes 2003;1:44.
5. Outcomes of cancer treatment for technology assessment and cancer treatment guidelines. American Society of Clinical Oncology. J Clin Oncol 1996;14:671-9.
6. Silvestri G, Pritchard R, Welch HG. Preferences for chemotherapy in patients with advanced non-small cell lung cancer: descriptive study based on scripted interviews. BMJ 1998;317:771-5.
7. Jacobsen PB, Davis K, Cella D. Assessing quality of life in research and clinical practice. Oncology (Williston Park) 2002;16:133-9.
8. Hickey A, Barker M, McGee H, et al. Measuring health-related quality of life in older patient population: a review of current approaches. Pharmacoeconomics 2005;23:971-93.
9. Mandellblatt J, Armetta C, Yabroff KR, et al. Descriptive review of the literature on breast cancer outcomes: 1990 through 2000. J Natl Cancer Inst Monogr 2004;33:8-44.
10. Gazmararian JA, Baker DW, Williams MV, et al. Health literacy among Medicare enrollees in a managed care organization. JAMA 1999;281:545-51.
11. Sprangers MA, Schwartz CE. Integrating response shift into health-related quality of life research: a theoretical model. Soc Sci Med 1999;48:1507-15.
12. Goodwin PJ, Black JT, Bordeleau LJ, et al. Health-related Quality of Life measurement in randomized clinical trials in breast cancer - taking stock. J Natl Cancer Inst Monogr 2003;95:263-81.
13. de Haes JC, Curran D, Aaronson NK, et al. Quality of life in breast cancer patients aged over 70 years, participating in the EORTC 10850 randomised clinical trial. Eur J Cancer 2003;39:945-51.
14. Rafai R, Brennan A, Madan J, et al. Modeling the Cost-Effectiveness of Alternative Upper Age Limits for Breast Cancer Screening in England and Wales. Value Health 2016;19:404-12.
15. Karlsen RV, Frederiksen K, Larsen MB, et al. The impact of a breast cancer diagnosis on health-related quality of life. A prospective comparison among middle-aged to elderly women with and without breast cancer. Acta Oncol 2016;55:720-7.
16. Browall MM, Ahlberg KM, Persson LO, et al. The impact of age on Health-Related Quality of Life (HRQoL) and symptoms among postmenopausal women with breast cancer receiving adjuvant chemotherapy. Acta Oncol 2008;47:207-15.
17. Leinert E, Singer S, Janni W, et al. The Impact of Age on Quality of Life in Breast Cancer Patients Receiving Adjuvant Chemotherapy: A Comparative Analysis From the Prospective Multicenter Randomized ADEBAR trial. Clin Breast Cancer 2017;17:100-6.
18. Takada K, Kashiwagi S, Asano Y, et al. Prognostic Value of Quality of Life in Endocrine Therapy for Elderly Patients With Breast Cancer: A Retrospective Study. Anticancer Res 2019;39:2941-50.
19. Arraras JI, Manterola A, Illarramendi JJ, et al. Quality of life evolution in elderly survivors with localized breast cancer treated with radiotherapy over a three-year follow-up. Breast 2018;41:74-81.
20. Muszalik M, Kołucka-Pluta M, Kędziora-Kornatowska K, et al. Quality of life of women with breast cancer undergoing radiotherapy using the Functional Assessment of Chronic Illness Therapy-Fatigue questionnaire. Clin Interv Aging 2016;11:1489-94.
21. Maruccia M, Di Taranto G, Onesti MG. One-stage muscle-sparing breast reconstruction in elderly patients: A new tool for retaining excellent quality of life. Breast J 2018;24:180-3.
22. Yagli NV, Ulger O. The effects of yoga on the quality of life and depression in elderly breast cancer patients. Complement Ther Clin Pract 2015;21:7-10.
23. Blair CK, Robien K, Inoue-Choi M, et al. Physical inactivity and risk of poor quality of life among elderly cancer survivors compared to women without cancer: the Iowa Women’s Health Study. J Cancer Surviv 2016;10:103-12.
24. Kurtz JE, Dufour P. Strategies for improving quality of life in older patients with metastatic breast cancer. Drugs Aging 2002;19:605-22.
25. Dalmasso B, Hatse S, Brouwers B, et al. Age-related microRNAs in older breast cancer patients: biomarker potential and evolution during adjuvant chemotherapy. BMC Cancer 2018;18:1014.

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