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Editorial

Health related quality of life studies in Indian patients after limb salvage surgery: Need of the hour

“Don’t just count the days, make the days count.” – Muhammad Ali

Management of patients with musculo-skeletal cancers has come a long way since the days when amputation was the only treatment option available. In last two decades the treatment paradigm has shifted towards limb conservation. Today the majority of patients are offered limb salvage surgery (LSS). LSS is now considered the standard of care.^{1,2} Amputation is an extensive and often invalidating procedure. It is both emotionally and physically devastating to the patients. Amputation would leave the patients with a lifelong requirement for an external prosthetic limb associated with an overall limited function. But inspite of this, there appears to be some inherent advantages too. Unlike limb salvage, amputations tend to be technically less complicated operations for the surgeon, resulting in few complications. The patient can often be discharged and mobilized after a relatively short period of time. In contrast, limb-salvage surgery may lead to long hospitalization and may result in a limb not functioning optimally. Patients with amputations usually need no further surgery, while limb salvage patients may need multiple surgeries throughout their lives to fix problems that occur with the initial reconstruction. Artificial limbs have been improved in appearance and function. These limbs have endoskeletons (shells) that can be covered with a more natural appearing material to make them look more like a normal limb. On the other hand one major drawback in limb-salvage surgery in the long-term survivors is that endoprostheses have a limited life span with long-term prosthetic failure. It is recognised that replacing a damaged, infected or severely worn-out arthroplastic joint or its intramedullary stem is difficult. Limb lengthening procedures in patients who have not reached maturity must also be addressed. Periprosthetic infections are more frequent in patients treated for neoplastic conditions and their outcome can be devastating, resulting in total loss of joint function, amputation, and systemic complications.^{3,4}

Thus, decision to offer a patient limb salvage surgery vs amputation is not a simple one. It is based on, better functional or cosmetic results with other individual factors coming into play, such as age of patient; social and personal relations; nature of the tumour; availability and affordability of surgery; and family support systems. In other words, assessment of impact

of surgery over Quality of Life (QoL) becomes imperative. Health-related quality of life (HR QoL) includes the opportunities that a person's health status affords, the constraints it places on the person, and the value a person places on his/her health status.⁵ Patrick and Erickson have defined HR QoL as “the value assigned to duration of life as modified by impairments, functional states, perceptions and social opportunities” that are influenced by disease, injury, treatment and policy.⁶

Limb-salvage surgery and reconstruction of bone defects is a challenging endeavour in orthopaedic oncology. Evaluation of improvement of the quality of life in these patients is difficult. There are numerous confounding factors. Some prominent ones are: Age (especially prepuberty vs postpuberty); Sex (female survivors of cancer in early life often report poorer HR QoL than males in comparable circumstances); Tumour characteristics (types include >50 histologic variants, size, and location); neoadjuvant vs adjuvant therapy and the era of study, reflecting the type of surgery and technical expertise as well as the changing practices of chemo therapy and radiotherapy.^{7,8} Currently available metrics of function include clinical measures such as range of motion and muscle strength; measures of activities of daily living; scales that combine both clinical measures and activities of daily living. The original and the revised version of the Musculoskeletal Tumour Society Rating Scale is example of one such scale used.

While LSS may appear intuitively to be a superior treatment option for extremity tumours, but QoL studies relating to LSS vs amputation have shown conflicting results. There appear to be greater advantages to limb-sparing surgery over amputation for higher surgical sites in the lower limb, such as the hip.⁷ But some find that Quality of life in terms of function, psychological outcome and endpoint achievements such as marriage and employment apparently do not differ significantly between amputee and nonamputees. It is also observed that while limb-salvage surgery may offer better functional status and return to normal living compared to amputation, it may not improve the patient's perception of quality of life.⁸ To compare the costs and benefits of amputation compared with limb-sparing surgery in these patients, Barr and Wunder⁹ reviewed all published papers on limb-sparing surgery that also measured patients' functional health and quality of life. The review found that while limb-sparing surgery is generally as effective as

amputation in ridding the patient of cancer, it tends to be associated with more early and late complications. Many studies have revealed no significant differences in psychological health and quality of life between patients who underwent amputations and those who had limb-sparing surgery.^{10,11}

Unfortunately, all the QoL studies in published literature pertain to western populace. While there are studies pertaining to successful application of LSS in Indian patients, there are no published studies pertaining to assessing QoL after LSS in this populace. It should be appreciated that LSS requires high degree of operative skill and an expensive infrastructure. While it is feasible in state-sponsored health care setups like NHS, UK to provide LSS across the board to all patients, it may not be an economically feasible option in developing country like India where 80% of healthcare cost is out-of-the-pocket. In Armed Forces too, we offer LSS as standard of care for extremity tumours.¹¹ It has been seen that there is no compromise in oncological safety and the functional results are good. After LSS, the individual can be successfully rehabilitated and re-integrated into the services. The need, however, is to assess the individual in a holistic fashion, rather than purely on functional and cosmetic basis. It is here that conducting well designed HR QoL studies in patients undergoing LSS vis-a-vis amputations are the need of the hour. Evidence derived from predominantly western literature need not apply true to Indian patients as this set of patients have radically different socioeconomic, social and personal outlook all of which affect final HR QoL outcomes. Armed forces medical services, with its well defined structure of referrals, management and follow up can play pioneering role in this regard. Future studies that include function, health-related quality of life, economics, and stratification of patients by age would be useful contributions to decision-making by all stake-holders; the patients, the health care providers and the administrators. *It must be remembered that it is not just enough to add years to the life left, but to add life to the years left; as well as to people with disabilities after limb salvage surgery.*

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Lt Gen B.K. Chopra, AVSM
Commandant, AMC Centre & College & OIC Records &
Col Commandant, Lucknow 226002, India
E-mail address: choprabhushan@yahoo.com

Available online 11 July 2013

0377-1237/\$ – see front matter

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<http://dx.doi.org/10.1016/j.mjafi.2013.05.003>