

Surgical Decisions for Lung Cancer: Impact on Quality of Life

L. Puente-Maestu and Y. Martínez Abad

Servicio de Neumología, Hospital General Universitario Gregorio Marañón, Madrid, Spain.

In an article in this journal in which we reviewed the role of forced expiratory volume tests before lung resection, we stated that decisions on operability should include consideration of postoperative quality of life, especially for patients with few chances of survival.¹ In other words, is it worth performing lung resection to treat cancer, even at the risk of poor quality of life, in patients for whom expected survival time is not long? Although no study has dealt with the question as such, the literature does offer information that points toward some conclusions. Before approaching the problem it should first be emphasized that quality of life is a subjective assessment by the patient and that, based on our experience, it is a mistake to suppose what another person will think is worthwhile. For example, in patients surgically treated for lung cancer, the quality of life ratings by a psychiatrist treating the patients correlated very poorly ($r=0.41$) with the patients' own ratings.²

Before proceeding further it seems important to mention that, when consulted, many patients of the age when lung cancer is most frequent are willing to accept aggressive or toxic treatment if it prolongs survival; they usually opt to live longer even if presented with situations in which quality of life is poor due to dyspnea, immobility, or total dependence on others. That, at least, was the conclusion of a study of 388 older adult patients who chose hypothetical treatment options based on the reading of 17 situations of early-stage and advanced-stage cases.³ One factor that seems to influence willingness to accept aggressive treatment is social well being, as subjects who considered they had a high level of social well being have been found to be more willing to undergo such treatment.⁴

More to the point of the present editorial, Dales et al⁵ measured quality of life before and after surgery at 1, 3, 6, and 9 months in a cohort of 117 consecutive subjects undergoing thoracotomy. Prior to surgery 14% complained of moderate or intense dyspnea; after surgery the percentage rose to 34% in the third month

but dropped to 10% at 6 and 9 months. Likewise, an 11% reduction in ability to perform activities of daily living before surgery became a greater reduction of over 21% but returned to baseline at 6 and 9 months. Zieren et al² used the European Organisation for Research and Treatment of Cancer (EORTC) quality of life questionnaire (EORTC QLQ-C30) to evaluate quality of life in 20 patients who underwent lung resection with intention to cure. Quality of life was evaluated before surgery and every 3 months after surgery for 1 year. At discharge from the hospital the patients indicated that quality of life was several points lower than before the operation, but at 6 months they had regained baseline levels. In contrast, Handy et al⁶ found that 131 patients had a poorer quality of life 6 months after lung resection than before, especially on the subscales for social functioning and pain. The authors used the Quality of Life Index and the Short-Form 36 Health Survey (SF-36) before and 6 months after surgery. An interesting observation of the study was that intrahospital operative mortality was 5.8% and an additional 12.2% died in the first 6 months. Preoperative carbon monoxide diffusing capacity—but not spirometry or walk test results—was closely related to postoperative quality of life. The same study mentioned that patients were more concerned about how surgery would change their lives than about postoperative mortality.

A more recent study⁷ compared the quality of life results of 132 survivors of at least 1 year (23 months on the average) of surgical treatment for bronchogenic carcinoma with those of 121 patients undergoing aortocoronary surgery. The SF-36 scores of both groups were lower than the healthy population but there were no differences between them (including scores for anxiety and depression) except in the subgroup of physical function. Once again, the lowest quality of life level was at 3 months, but preoperative level was recovered by 12 months. The results of this study are somewhat surprising since one would expect higher levels of anxiety and depression associated with the pain of a lateral thoracotomy compared to a median sternotomy.⁸ Nevertheless, the literature reports that surgically treated lung cancer patients rate their quality of life lower than those undergoing surgery for colon and prostate cancers.⁹

Correspondence: Dr. L. Puente-Maestu.
Servicio de Neumología, Hospital General Universitario Gregorio Marañón.
Dr. Ezquerdo, 46, 28007 Madrid, España.
E-mail: lpuente@separ.es

Manuscript received June 21, 2004. Accepted for publication August 31, 2004.

Sarna et al¹⁰ used the QOL-Survivor and the SF-36 questionnaires to assess quality of life in 142 lung cancer subjects who had survived more than 5 years. Most of the survivors (71%) were described as hopeful and 50% viewed their cancer as a positive experience. This study described a surprisingly positive picture: many patients rated their quality of life rather high despite the fact that most of them suffered diminished lung function. Depression that could potentially be alleviated—not physical limitation—was the main cause of poor quality of life among those who had the lowest scores. Survivors of lung cancer had a better mental outlook than patients with other chronic respiratory diseases. In another study the same authors found no relation between degraded function and quality of life.¹¹

Another interesting question is whether conventional resection and video-assisted thoracoscopic surgery (VATS) have different impacts on quality of life. Li et al¹² studied Chinese lung cancer patients who had long postoperative survival rates. Mean survival was 37 months for the 27 patients in the VATS group, and 39 months for the 24 patients in the thoracotomy group. Quality of life was evaluated using the Chinese versions of the EORTC QLQ-C30 and the EORTC QLQ-LC13. Both groups had similar quality of life scores. Although the VATS group had slightly higher function scores and fewer symptoms, the differences were of no statistical significance. Function scores were high despite the rather frequent presence of symptoms.

Sugiura et al¹³ studied 44, stage-I lung cancer patients, 22 of whom were surgically treated by VATS and 22 by thoracotomy. Acute pain was evaluated relative to the amount of opiates or epidural analgesia required; quality of life was evaluated according to patients' answers regarding chronic thoracic pain, limited arm function, time needed to recover preoperative activity, and satisfaction with the operation. The VATS patients had less acute postoperative pain, took less time to recover normal exercise capability, worried less about wound size, and had a better overall impression of the operation.

The information in the studies cited in the present editorial seems to point toward the following conclusions:

1. Quality of life deteriorates after surgery, especially at 3 to 6 months, but patients regain baseline quality of life at 6 to 12 months. Such a reversal may occur as thoracic pain disappears or as lung function and exercise capacity are recovered.¹⁴ Nevertheless, bias in patient selection should not be ruled out since patients with poorer function do not survive the postoperative period.⁶

2. The little information available indicates that postoperative quality of life cannot be predicted by preoperative function tests.

3. In the only study that mentioned preoperative patients' misgivings about postoperative scenarios, patients wanted more information about how surgery would change their lives.⁶ Most of the patients were willing to take on the risk if it supposed living longer, but they would have liked to know more about altered physical capacity and social life, and the possible time needed to recover from such alterations.

4. There may be a high incidence of surgery-related mortality, unrelated to the tumor, during the first 6 postoperative months. This possibility has not been considered in studies on postoperative mortality.

5. Assessing quality of life can assist caregivers in interpreting a patient's symptoms (pain) and the presence of correctable problems (depression).

6. VATS seems to result in a relatively better quality of life during the first postoperative months but offers no advantage in the long term.

REFERENCES

1. Puente-Maestu L, Ruiz Martón JJ. Prueba de esfuerzo en la cirugía resectiva pulmonar. *Arch Bronconeumol.* 2003;39:126-32.
2. Zieren HU, Muller JM, Hamberger U, Pichlmaier H. Quality of life after surgical therapy of bronchogenic carcinoma. *Eur J Cardiothorac Surg.* 1996;10:233-7.
3. Yellen SB, Cella DF. Someone to live for: social well-being, parenthood, satatus, and decision, making in oncology. *J Clin Oncol.* 1995;13:1255-62.
4. Cicirelli VG. Relationship of psychosocial and background variables to older adults' end-of-life decisions. *Psychol Aging.* 1997;12:72-9.
5. Dales RE, Belanger R, Shamji FM, Leech J, Crepeau A, Sachs HJ. Quality-of-life following thoracotomy for lung cancer. *J Clin Epidemiol.* 1994;47:1443-9.
6. Handy JR Jr, Asaph JW, Skokan L, Reed CE, Koh S, Brooks G, et al. What happens to patients undergoing lung cancer surgery? Outcomes and quality of life before and after surgery. *Chest.* 2002;122:21-30.
7. Myrdal G, Valtysdottir S, Lambe M, Stahle E. Quality of life following lung cancer surgery. *Thorax.* 2003;58:194-7.
8. Asaph JW, Handy JR Jr, Grunkemeier GL, Douville EC, Tsen AC, Rogers RC, et al. Median sternotomy versus thoracotomy to resect primary lung cancer: analysis of 815 cases. *An Thorac Surg.* 2000;70:373-9.
9. Schag CAC, Ganz PA, Wing DS, Sim MS, Lee JJ. Quality of life in adult survivors of lung, colon, and prostate cancer. *Qual Life Res.* 1994;3:127-41.
10. Sarna L, Padilla G, Holmes C, Tashkin D, Brecht ML, Evangelista L. Quality of life of long-term survivors of non-small-cell lung cancer. *J Clin Oncol.* 2002;20:2920-9.
11. Sarna L, Evangelista L, Tashkin D, Padilla G, et al. Impact of respiratory symptoms and pulmonary function on quality of life of long-term survivors of non-small cell lung cancer. *Chest.* 2004; 125:439-45.
12. Li WW, Lee TW, Lam SS, Ng CS, Sihoe AD, Wan IY, Yim AP. Quality of life following lung cancer resection: video-assisted thoracic surgery vs thoracotomy. *Chest.* 2002;122:584-9.
13. Sugiura H, Morikawa T, Kaji M, Sasamura Y, Kondo S, Katoh H. Long-term benefits for the quality of life after video-assisted thoracoscopic lobectomy in patients with lung cancer. *Surg Laparosc Endosc Percutan Tech.* 1999;9:403-8.
14. Bolliger CT, Jordan P, Soler M, Stulz P, Tamm M, Wyser C, et al. Pulmonary function and exercise capacity after lung resection. *Eur Respir J.* 1996;9:415-21.