

Effects of Extended Pleurectomy and Decortication on Quality of Life and Pulmonary Function in Patients With Malignant Pleural Mesothelioma

David Burkholder, BS, Duraid Hadi, MD, Rangesh Kunnavakkam, PhD, Hedy Kindler, MD, Kristy Todd, PA-C, Amy Durkin Celauro, PA-C, and Wickii T. Vigneswaran, MD

Division of Cardiac and Thoracic Surgery, Department of Surgery, Department of Biostatistics, and Division of Hematology and Oncology, Department of Medicine, University of Chicago Medicine, Chicago, Illinois

Background. Maximal cytoreductive surgeries—extrapleural pneumonectomy and extended pleurectomy and decortication (EPD)—are effective surgical treatments in selected patients with malignant pleural mesothelioma. Extended pleurectomy and decortication results in equivalent survival yet better health-related quality of life (HRQoL).

Methods. Patients with malignant pleural mesothelioma were studied for the effects of EPD on HRQoL and pulmonary function. The European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire-C30 was used to evaluate HRQoL before operation, and at 4 to 5 and 7 to 8 months postoperatively. Pulmonary function tests were measured immediately before and 5 to 7 months after the operation. Patients were compared according to World Health Organization baseline performance status (PS).

Results. Of the 36 patients enrolled, 17 were PS 0 and 19 were PS 1 or PS 2 at baseline. Patients in groups PS 1 and PS 2 had significantly worse global health, functional, and symptoms scores. After EPD, PS 0 patients had no change in global health or function and symptoms

scores except for emotional function, whereas PS 1 or PS 2 patients showed improvements at 4 to 5 months with further improvements at 7 to 8 months. The PS 0 patients demonstrated a significant decrease in forced vital capacity ($p = 0.001$), forced expiratory volume in 1 second ($p = 0.002$), total lung capacity ($p = 0.0006$) and diffusing capacity of the lung for carbon monoxide ($p = 0.003$) after EPD, whereas no change was observed in PS 1 and PS 2 patients.

Conclusions. Extended pleurectomy and decortication did not improve overall HRQoL and had a negative impact in pulmonary function in minimally symptomatic patients. In symptomatic patients, a significant improvement in HRQoL was observed after EPD, which continued at late follow-up, although the pulmonary function was not affected. As changes in HRQoL are multidimensional, the preservation of the pulmonary function may have contributed to the net benefit observed in PS 1 and PS 2 patients.

(Ann Thorac Surg 2015;■:■-■)

© 2015 by The Society of Thoracic Surgeons

Malignant mesothelioma is an aggressive malignancy, and approximately 3,000 new cases are diagnosed in the United States annually, with 85% of them affecting the pleura [1]. Patients with malignant pleural mesothelioma (MPM) invariably present with fatigue and shortness of breath as the initial symptoms. Associated pleural effusion and circumferential growth of the tumor restricting lung and chest wall expansion often is responsible for the shortness of breath in these patients. Additional symptoms include chest pain, cough, and weight loss, all of which may have a significant effect on health-related quality of life (HRQoL), which incorporates domains related to physical, mental, emotional, and social functioning [2].

Life expectancy from diagnosis of MPM is 7 to 9 months with palliative or supportive care and approximately 12 months with chemotherapy [3]. Multimodality therapy provides superior outcomes compared with other strategies [1, 3–5]. The goal of surgery is macroscopic complete resection; however, the optimal surgical therapy has been debated [6–8]. The principal cytoreductive surgical approaches for MPM are extrapleural pneumonectomy (EPP) and extended pleurectomy and decortication (EPD). Both primarily aim to resect all macroscopic tumor and control symptoms; this includes resection of all or a significant part of the ipsilateral hemidiaphragm. Extended pleurectomy and decortication is aimed additionally at restoring ipsilateral lung expansion and removing the restrictive tumor from the chest wall [8, 9]. Generally the treatment for MPM result in modest survival advantage, and therefore HRQoL is an important measurement of the net benefit achieved.

There are very few studies that have focused on the effects of surgery on HRQoL after EPD surgery.

Accepted for publication Jan 15, 2015.

Address correspondence to Dr Vigneswaran, University of Chicago Medicine, 5841 S Maryland Ave MC 5040, Chicago, IL 60637; e-mail: wvignesw@surgery.bsd.uchicago.edu.

Abbreviations and Acronyms

DLCO	=	diffusing capacity of the lung for carbon monoxide
EORTC QLQ-C30	=	European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire-C30
EPD	=	extended pleurectomy and decortication
EPP	=	extrapleural pneumonectomy
FEV ₁	=	forced expiratory volume in 1 second
FRC	=	functional residual capacity
FVC	=	forced vital capacity
GHQoL	=	global health quality of life
HRQoL	=	health-related quality of life
MPM	=	malignant pleural mesothelioma
PFTs	=	pulmonary function tests
PS	=	performance status
TLC	=	total lung capacity
WHO	=	World Health Organization

Furthermore, few have examined pulmonary function after the treatment, and no studies have looked at both HRQoL and pulmonary function tests (PFTs) simultaneously [10–13]. The purpose of this study was to examine the effects of EPD on both HRQoL and pulmonary function and the interrelationship between the two in MPM patients.

Material and Methods

All patients with malignant pleural mesothelioma with epithelioid or biphasic histology with unilateral disease and World Health Organization (WHO) performance status (PS) 0 through 2 were considered for maximal cytoreductive surgery. Informed consent was obtained that was approved by the institutional review board. Patients who underwent an EPD for MPM, and enrolled in the HRQoL study with pulmonary function that was measured preoperatively and 6 months postoperatively formed the basis of this report. The HRQoL was assessed using the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire-C30 toll (EORTC QLQ-C30). This instrument had been validated in patients with MPM undergoing surgery as a useful tool in evaluating HRQoL [11, 12]. All patients underwent histologic confirmation of the disease and initial drainage of pleural effusion according to the care provider's preference before EPD. Thirty-six patients undergoing EPD also had their PFTs performed immediately before the operation and at 6 (\pm 1) months postoperatively and participated in the HRQoL evaluation before surgery and at 4 to 5 months and 7 to 8 months after surgery. All patients received clinical and radiologic computed tomographic scan of the chest and abdomen examinations within 6 weeks of the operation and as part

of standard follow-up at 1 month and every 3 months thereafter. Patient HRQoL was recorded immediately before surgery (0) and at 1, 4 to 5, 7 to 8, 10 to 11, and 13 to 14 months postoperatively according to the protocol. Preoperative data were entered prospectively and recorded as in the data collection for The Society of Thoracic Surgeons General Thoracic Surgery Database based on the completion of Major Procedure Data Collection Form Version 2.2 for each patient. Additional information was obtained from the initial clinical appointment forms and laboratory results. For the purpose of this study, we analyzed these 36 patients who had preoperative and 5 to 7 months postoperative PFTs and who had completed 4 to 5 and 7 to 8 months HRQoL questionnaires.

Each patient underwent EPD surgery exclusively at the University of Chicago Hospital performed by the same surgeon (W.T.V.). The EPD operation consisted of removal of the parietal and visceral pleura with dissection and excision of tumor in the fissures and partial or complete resection of the hemidiaphragm with Gore-Tex (W.L. Gore and Associates, Inc, Newark, DE) prosthetic reconstruction. Pathologic tumor staging was done according to the TNM staging system [14].

The EORTC QLQ-C30 was incorporated into five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea and vomiting), a global health quality of life (GHQoL) scale, and a number of single items assessing additional symptoms. Raw scores were converted to a linear scale ranging from 0 to 100, with a high score for a functional scale or GHQoL scale representing a high or healthy level of functioning, whereas a high score for a symptom scale represents a high level of symptomatology or problems. All scoring and scaling was performed according to the EORTC QLQ-C30 Scoring Manual, Third Edition.

Baseline performance status (PS) was determined at the preoperative visit according to the World Health Organization criteria; PS 0 = asymptomatic, able to carry on all predisease activities without restriction; PS 1 = symptomatic but completely ambulatory (restricted in physically strenuous activity but able to carry out work of a light or sedentary nature); and PS 2 = less than 50% in bed during the day (ambulatory and capable of all self-care but unable to carry out any work activities; patients are up and about more than 50% of their waking hours). Patients completed their baseline HRQoL questionnaire during this visit.

To determine the change in HRQoL scores for each PS group, mean scores for each functional and symptom domain of the EORTC QLQ-C30 were determined at every time point and subtracted from the baseline. In case of a change in sample size at each time point owing to death or withdrawal, mean baseline scores were recalculated for those patients remaining and used as reference to eliminate the chance that missing data may bias the results.

We examined PS 0 and PS 1, 2 groups for a significant change in PFT values using the independent Student's *t* test, and the change in PFT values were measured against change in QoL for both PS groups using the paired

Download English Version:

<https://daneshyari.com/en/article/2873757>

Download Persian Version:

<https://daneshyari.com/article/2873757>

[Daneshyari.com](https://daneshyari.com)