A survey of opinions and beliefs concerning surgery for malignant pleural mesothelioma amongst 802 members of the European Association for Cardio-Thoracic Surgery (EACTS), the European Society of Thoracic Surgeons (ESTS) and the Society of Thoracic Surgeons (STS)

Tom Treasure*, Eveline Internullo, Francesca Fiorentino, Dirk Van Raemdonck, Paul Van Schil, Malcolm DeCamp, Douglas Wood, Martin Utley

*Clinical Operational Research Unit, Department of Mathematics, University College London, 4 Taviton Street, London WC1H 0BT, UK
Department of Thoracic Surgery, San Martino Hospital, Genoa, Italy
Department of Thoracic Surgery, University Hospital Gasthuisberg, Leuven, Belgium
Department of Thoracic and Vascular Surgery, University Hospital of Antwerp, Antwerp, Belgium
Division of Thoracic Surgery, Northwestern Memorial Hospital, Feinberg School of Medicine at Northwestern University, Chicago, IL, USA
Division of Cardiothoracic Surgery, University of Washington, Seattle, WA, USA

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Malignant pleural mesothelioma (MPM) incidence continues to rise in Europe [1]. The UK has one of the highest national incidences in the world, due to peak between 2011 and 2015 [2] and Western Australia is believed to have the highest regional incidence [3]. There is likely to be an increasing incidence of this disease in countries where asbestos use continues and where its use is not well-regulated [4]. There is an important role for thoracic surgeons in helping to provide a prompt and reliable diagnosis and in palliation of pleural fluid so surgeons will continue to be involved in the care of these patients, but the benefits of various forms of extirpative surgery are contentious and as yet unresolved.

Consideration of clinical trials of surgery continues – in the UK as a sequel to the Mesothelioma and Radical Surgery (MARS) trial [5] and across Europe as a sequel to European Organisation for Research and Treatment of Cancer (EORTC) 08031 [6]. In planning future studies, it is essential to gauge the prior beliefs and opinions of surgeons; recruitment is inevitably difficult and a randomised study of an intervention is only achievable where there is some balance of prior beliefs and opinions. Recruitment is only achievable where there is some balance of prior beliefs and opinions.

The Thoracic Domain of the European Association for Cardio-Thoracic Surgery (EACTS) proposed a survey of opinions and beliefs on the perceived effects and benefits of different surgical strategies; the survey was adopted by the European Society of Thoracic Surgeons (ESTS) and the Society of Thoracic Surgeons (STS). It should be noted that the survey was completed before MARS or EORTC 08031 results were known.

1. Questionnaire design

A questionnaire exploring opinions and beliefs concerning the role of surgery in MPM was designed by two of the authors (Tom Treasure and Eveline Internullo) and was piloted amongst members of EACTS’ Thoracic Domain (n = 7) to check for clarity in question formulation. Members of EACTS, ESTS and STS were invited to complete the survey online in a commercially available format (www.surveymonkey.com). Members of more than one society were asked to answer the survey only once. Responses were collected anonymously.

The questionnaire, consisting of 50 questions (see Table 1) related to the role of surgery in the treatment of MPM. The surgery was identified as extrapleural pneumonectomy (EPP), pleurectomy/decortication (PD), and debulking, each considered alone or within multimodality therapy. Questions focussed on in this report were the likelihood of cure, prolongation of life, and improvement in breathing with these treatments for patients with epithelioid mesothelioma. An abbreviated question set addressed the same issues with regard to sarcomatoid mesothelioma. Demographic data were also gathered (type of practice, years in practice, unit size, country of practice). Definitions of some keywords (‘radical surgery’, ‘EPP’, ‘PD’, ‘debulking’, ‘video-assisted thoracic surgery (VATS)’, ‘pleurectomy’, and ‘cure’) were given at the beginning of the questionnaire to ensure clarity and consistency.

For organizational reasons, the questionnaire was opened to EACTS, ESTS and STS at different times between 5th August and 10th September 2009 and the survey was closed on 24th November 2009. The resulting online collecting
period was 111 days for ESTS, 99 for EACTS and 75 for STS. During this time period two reminders were sent to EACTS and STS members and one to ESTS members in order to boost responses. An iterative exploration of the results was performed and a selection of analyses is presented here. The full data set is available for further research on application to EACTS Thoracic Domain.

2. Response

We received a total of 802 responses. For individual questions the number of complete responses ranged from 688 to 802. There were 235 responses from ESTS members representing about a quarter of the membership. There were 341 responses from EACTS members and 348 from STS members but as both have a preponderance of cardiac surgeons, most of whom did not see it as appropriate to respond, we cannot be sure of the appropriate denominator and therefore cannot supply a response rate overall. In all 122,802 respondents belonged to more than one professional organisation.

We asked that members of more than one organisation replied only once but we could not exclude the possibility of double voting without breaking the promised anonymity. There was no evident difference in opinions and beliefs according to organisation so any form of exclusion or adjustment would not have been warranted.
Fig. 1. The left hand column of four barcharts are all related extrapleural pneumonectomy (EPP), the right are equivalent questions for pleurectomy/decortication (PD). The top row concerns cure with surgery alone (Q. 1&3) and the second surgery combined with the maximum appropriate adjuvant therapies (Q. 9&7). The next two rows concern prolongation of life with surgery alone (Q.11&15) and with maximum adjuvant therapy (Q. 13&17). For each question the responses are shown for those who do and do not perform EPP and PD (Q. 30&32). Higher rates of cure and prolongation of life are believed with EPP than PD, with adjuvant therapy than without, and for some questions, by those who do rather than those who do not perform the surgery.

Fig. 1(a–h) presents the answers to eight questions in pairs for EPP and PD. These questions ask whether the responder believes that the operation can achieve cure of epithelioid mesothelioma and whether it can achieve prolongation of life, by the effect of the operation alone, and with adjuvant therapy thus providing $2 \times 2 \times 2 = 8$ panels in the Figure. The responses in each panel are divided into those who do and do not perform the operation. There is a very evident pattern. For both cure and prolongation of life, more surgeons believe it is achievable with EPP than
with PD, it is more likely with adjuvant therapy than without, and these beliefs are a little more frequently held, but not markedly so, by those who do than do not perform that surgery.

Fig. 2(a–h) takes the same questions and explores if there is any difference in these responses from Europe, USA and other parts of the world. Forty-five percent of responders from the USA believed that EPP alone could cure epithelioid mesothelioma compared with 23% in Europe. This was the largest difference we found for any of the comparisons made (Fig. 2a). There was little evident difference in belief according to type of practice, or seniority for the majority of questions.

Fig. 3(a–f) show the practice setting, the seniority of the respondent, and the years in practice. There is no striking pattern.

Fig. 3g shows opinions as to the cure rate of epithelioid mesothelioma. The cure rate is believed to be greater with
EPP than PD and, for each operation, to rise with the addition of adjuvant treatment and is believed highest when EPP is part of trimodality therapy.

There were the questions where respondents showed a large measure of agreement (that is to say >90% share the opinion). For example the belief that EPP within multimodality therapy prolongs life (Fig. 1g) is shared by 91% (637/700) while only 12% (86/700) believe that PD alone can achieve cure (Fig. 1b). But for many questions respondents were relatively evenly divided, commonly with splits of the order of 70:30.

Note that we offer no tests of statistical significance. With 50 questions, and their subdivision, the number of $2 \times 2$ comparisons is vast. With the number of results...
available, to select those of interest for a statistical test of inference and to claim significance or not, would be entirely inappropriate.

3. Conclusion and comments

The six surgical authors of the report had the opportunity to present their personal beliefs within the survey and so here we report impartially the beliefs of this very large sample of thoracic surgeons. The objective was not to set a knowledge quiz and the survey should not be viewed as such. We therefore make no attempt to test these opinions and beliefs against ‘evidence’. Nor do we see any purpose in any form of adjudication on the reasonableness or otherwise of any of these beliefs but individual surgeons may be interested in where their own views sit amongst those of 800 of their peers.

The quality of evidence with respect to the effectiveness of mesothelioma surgery is recognised as poor, relying as it does on retrospective clinical reports [7]. The available published guidance has therefore largely been derived by consensus. A North American guideline from the National Comprehensive Cancer Network advocates EPP in selected cases but recent European guidance is rather to the contrary suggesting that EPP should be performed only within clinical trials. It will be seen that this difference in North American and European guidance with respect to EPP is reflected in the most obvious geographical difference in the survey (Fig. 2a). Both guidelines suggest a place for more conservative, lung sparing approaches with complete resection of visible disease by surgery, commonly named PD.

The incidence of MPM continues to rise in many countries and thoracic surgeons will have a role in its management. We sought to discover the opinions and beliefs of the many thoracic surgeons involved in the care of these patients in Europe, North America and throughout the world. A total of 802 surgeons responded. EPP was believed to be more effective than PD and the addition of adjuvant chemotherapy and multimodality therapy were believed to increase the chance of cure. These beliefs were not markedly different between those who performed or did not perform each form of surgery. Opinions varied little with type of practice. There was one geographical difference, however, American surgeons are twice as likely to believe that EPP alone can cure mesothelioma as those in Europe (45% vs. 23%).

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References


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