

Scientific prove of better quality of life and postoperative pain by minimal invasive thoracic surgery

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Comment on: Bendixen M, Jørgensen OD, Kronborg C, *et al.* Postoperative pain and quality of life after lobectomy via video-assisted thoracoscopic surgery or anterolateral thoracotomy for early stage lung cancer: a randomised controlled trial. *Lancet Oncol* 2016;17:836-44.

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We read with great interest the results of the trial of Bendixen *et al.* (1). The randomised controlled study of the University Hospital of Odense, Denmark demonstrated that video-assisted thoracoscopic lobectomy is superior to anterolateral thoracotomy and lobectomy for early stage lung cancer in terms of postoperative pain and quality of life. The authors point out that video-assisted thoracoscopic surgery (VATS)-lobectomy has a small but significant advantage in documented postoperative pain and a significantly better self-reported quality of life.

The lack of randomised studies in VATS surgery

Although VATS-lobectomy is a well-established surgical procedure for the treatment of early stage lung cancer worldwide, until now any prospective randomised trial on postoperative pain or quality of life was not published. Furthermore, we do not know to what extent videoassisted thoracic surgery is used in early stage lung cancer. In the recent analysis of the French registry (EPITHOR) from the period 2005 to 2012, the proportion of VATS lobectomy is as low as 4.9% (2). The low rate of using a minimal invasive approach may be due to the lack of evidence based informations for the benefits for the patient by reducing the surgical access injury. Therefore, the study of Bendixen *et al.* is crucial for scientific based propagation of videoassisted lung surgery.

We are grateful to Bendixen and his colleagues for this

cornerstone of evidence. Nevertheless, some critical points of the study should be mentioned. There has been a long period of patient enrolment (6 years) and only 60% of the patients had been fully documented. Furthermore, the use of four incisions does not represent the modern development in VATS to reduce the intercostal injury. Although, we do not dispose of prospective randomised studies comparing the different techniques of thoracoscopic surgery, the reduction of incisions is logical and should be pursued (3).

Chronic pain in thoracic surgery

Pain was documented using the numeric rating scale, which is a verified scale for investigation of intensity of pain. VATS techniques have undoubtedly minimized the clinical problem of immediate and acute postoperative pain. Probably more important than early postoperative pain is the chronic neuropathic pain which has an incidence of up to 50% of patients after thoracotomy (4,5). The international association for the study of pain defines post thoracotomy pain syndrome (PTPS) as a pain that recurs or persists along a thoracotomy incision at least 2 months following the surgical procedure. In addition, PTPS is mainly attributed to neuropathic pain. PTPS can also be encountered in VATS-lobectomy patient collectives with only one 3–4 cm utility incision although rib spreading has not been used. Neuropathic pain derives from a direct lesion or disease of

the somatosensory system and is being described through typical symptoms (paraesthesia, hypoesthesia, spontaneous or burning pain). For clinical investigation of a positive effect of VATS technique on chronic postthoracotomy pain more accurate neuropathy-specific questionnaires (LANS score) should be used. The use of such questionnaires in the study of Bendixen *et al.* would demonstrate possibly a more significant effect of VATS lobectomy in comparison to anterolateral thoracotomy on chronic postoperative pain. The use of metallic rib spreader, the length of the intercostal incision, the applied intercostal suture for closure are factors that enhance the risk for PTPS after anterolateral thoracotomy. These factors are clearly multiplied in case of posterolateral thoracotomy and obviously minimized in the case of non-rib-spreading, non-intercostal-suture VATS-lobectomy.

The positive effect of the trial of Bendixen *et al.* on postoperative quality of life could be also considered as a positive effect on PTPS. Though neuropathic pain is not always of high intensity (NRS >3–4), it can reduce significantly the quality of life of postoperative lung cancer patients (6,7).

Alternative treatment of lung cancer

Alternative methods of early stage lung cancer treatment like stereotactic irradiation have been developed and claim a good oncological result in combination with low morbidity (8). Instead of dealing with a plethora of VATS techniques in uncounted case series, the thoracic surgeons should document the excellent long term survival with good quality of live using high quality scientific studies. The above trial could be considered as a starting grid for future investigations in terms of postoperative pain and quality of life. By this data the patients and their treating physicians are enabled to choose the best way of treatment.

Robot assisted surgery

Considering the aspects mentioned above, the clinical impact of robot assisted thoracic surgery is in almost the same manner unknown, although the technical possibilities are impressive (9). This technique has to demonstrate his advantage in patient related endpoints like quality of live, pain or survival to be fully accepted as a progress in thoracic surgery.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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