Thoracoscopic Esophagectomy in Prone Versus Decubitus Position: Ergonomic Evaluation From a Randomized and Controlled Study

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Background. The prone position (PP) and decubitus position (DP) have both been used for thoracoscopic esophagectomy. However, which of these positions is ergonomically better for the operating surgeon is unknown. In this randomized controlled trial (NCT01144325), we aimed to assess the surgeon’s physical and mental stress in operating on patients in the PP compared with that in the DP.

Methods. From October 2012 to June 2013, 67 consecutive patients who underwent a three-stage minimally invasive esophagectomy were randomly assigned to the DP or the PP during the thoracic stage. The same senior surgeon performed all operations. Objectively, the surgeon’s spontaneous eye blink rate was recorded during thoracoscopic esophagectomy. Subjectively, the physician’s musculoskeletal symptoms were rated on a scale ranging from 1 (uninfluenced) to 10 (maximum fatigue). Clinical characteristics, including patient demographics and operative features of the two patient groups, were statistically compared.

Results. There were 35 patients in the PP group and 32 in the DP group. The two groups were comparable in patient demographics. The thoracic stage of the operation was longer in the DP group than in the PP group (87 ± 24 minutes vs 68 ± 22 minutes, \( p < 0.001 \)), and the volume of blood loss was higher (89 ± 18 mL vs 67 ± 16 mL, \( p < 0.001 \)). The surgeon’s eye blink rate at the end of thoracic stage decreased more from baseline in the DP group than in the PP group (3.0 ± 1.4 blinks/min vs 1.2 ± 0.9 blinks/min, \( p < 0.001 \)), and the surgeon’s symptom scale score was higher after operation with the patient in the DP than in the PP (6.29 ± 1.54 vs 3.13 ± 2.82, \( p < 0.001 \)). No conversion to open thoracotomy was recorded in either group.

Conclusions. Thoracoscopic esophagectomy in the PP provided less workload and better ergonomic results than the DP. Further study based on a larger number of patients is required to confirm these findings.


Esophagectomy remains a technically demanding procedure associated with high morbidities for patients [1] and considerable fatigue for the surgeons who perform the operation [2]. Recently, the prone position (PP) has become accepted during the surgical resection of esophageal cancer [3, 4], but whether this position improves the surgeon’s ergonomics is unclear.

In a recent review from Noshiro and Miyake [5], supportive evidence was collected on the comparison between PP and DP for minimally invasive esophagectomy (MIE), and they suggested that the PP during thoracoscopic esophagectomy may provide better ergonomics due to the improvements in esophageal mobilization and lymph node dissection. However, this topic has been less discussed in previous publications, and therefore, a prospective study would be helpful in determining the superiority of the ergonomic aspects between the two positions.

We started performing MIE in 2006, and our previous publication showed that the PP was superior to the DP in operative duration and lymph node harvest [6]. On the basis of our recent experience with MIE, we report our ergonomic results from this randomized controlled trial.

Patients and Methods

This prospective, randomized, controlled trial was registered with Clinicaltrials.gov (NCT01144325) and was approved by the Ethics Committee of Zhongshan Hospital of Fudan University (No. 2009105).

Enrollment

Written informed consent was obtained from all enrolled patients by the surgeon at least 1 day before the operation, after careful explanation of the procedures and goals of the study.

The trial enrolled all patients with esophageal cancer who were eligible for three-stage MIE at our institution.
from October 2012 to June 2013. Patient demographics and tumor characteristics were collected, and patients received a detailed consultation after admission. Tumor lesions were clinically staged by endoscopy, tissue biopsy specimen, thoracoabdominal computed tomography (CT), and endoscopic ultrasound imaging. Positron emission tomography-CT scan was suggested in patients in whom tumor invasion to the lymph nodes was suspected.

According to clinical assessment, the MIE inclusion criteria were as follows:

(a) patients with clinically staged T1-3 N0 M0 tumors;
(b) patients without previous history of cancer;
(c) patients without previous history of neck or chest operations;
(d) patients with an American Society of Anesthesiology score of 1 to 2.

The exclusion criteria for MIE were as follows:

(a) patients with preexisting chronic obstructive pulmonary disease, asthma, or interstitial lung disease;
(b) patients with cardiac, hepatic, or renal dysfunction;
(c) patients who had undergone neoadjuvant therapy; and
(d) tumor invasion to the peripheral structures.

Randomization
Randomization was performed by use of a computer-generated list. Patients were randomly assigned to the PP or the DP with sequentially numbered, sealed envelopes containing information that disclosed the type of treatment to be applied. The flow diagram is shown in Figure 1.

Anesthesia and Analgesia
All patients received a combination of epidural and general anesthesia and were provided with patient-controlled analgesia postoperatively. During the thoracic stage, the PP patients were intubated with a single-lumen endotracheal tube to accomplish double-lung ventilation, and an artificial CO₂ pneumothorax was achieved at a pressure of 8 mm Hg. Patients in the DP position were intubated with a double-lumen endotracheal tube to accomplish left-lung ventilation without pneumothorax.

All patients were extubated at the end of the procedure and transferred to the intensive care unit.

Operative Procedure
All operations were performed by the same senior surgeon during the same period. MIE consisted of three stages (thoracic, abdominal, and cervical), as has been described [7, 8].

Thoracic Stage
The thoracic stage included esophageal mobilization and mediastinal lymphadenectomy.

THORACOSCOPIC ESOPHAGECTOMY IN THE PP. Patients were placed in the PP with the right arm extended, and the right side of the operating table was slightly raised. The surgeon stood at the ventral aspect of the patient, and an assistant surgeon, the scopist, stood at the surgeon’s side (Figure 2). A high-definition video monitor was set up at the cephalad end of the patient.

For introduction of the thoracoscope (30°), an observation port was placed at the seventh intercostal space (ICS) along the midaxillary line, and another 10-mm port was placed at the ninth ICS in the midscapular line. Two 5-mm ports were placed at the third ICS along the midaxillary line and just inferior to the tip of the scapula respectively (Figure 2).

After thoroscopic exploration, the azygous vein was ligated by use of the Hem-o-lok ligation system (Weck Surgical, Teleflex, Limerick, PA) and then divided. The thoracic esophagus was mobilized, proceeding from the tumor inspection site to the thoracic inlet cranially and to the hiatus caudally. Mediastinal lymphadenectomy was performed along bilateral recurrent laryngeal nerves and the subcarinal and paraeosophageal stations. The procedure was completed by placement of an intercostal drain and closure of the thoracic ports.

THORACOSCOPIC ESOPHAGECTOMY IN THE DP. The operating details of thoracoscopic esophagectomy in the DP have been described in a previous publication [9]. The surgeon stood at the dorsal aspect of the patient. Beside the scopist, an assistant surgeon aided by retracting the lung and esophagus (Figure 3). Four thoracic ports were introduced during the thoracic stage. A 10-mm trocar

Fig 1. Flow diagram of the study. (DP = decubitus position; MIE = minimally invasive esophagectomy; PP = prone position.)
was placed as the camera port in the seventh ICS along the anterior axillary line. A second 10-mm port was placed at the fourth ICS along the anterior axillary line for insertion of the retractor, and the remaining 2 ports were placed at the same location as described in the PP. The thoracic procedure was performed without pneumothorax.

Abdominal and Cervical Stages
The procedures were the same as described in a previous report [10]. Abdominal operations commenced with dissection of the gastrohepatic ligament at the lesser curvature of the stomach and exposure of right crus of the diaphragm. The left gastric artery was ligated by Hem-o-lok and dissected. The short gastric vessels were divided by ultrasonic shear coagulation (Ethicon Endo-Surgery Inc, Cincinnati, OH). The gastric conduit was cut along the greater curvature of the stomach, and the right gastroepiploic arcade was preserved. The mobilized stomach was prepared for gastric conduit formation without pyloroplasty. Laparoscopic jejunostomy was performed on all patients to provide enteral nutrition from the second postoperative day.

In the cervical stage, the DST 23 circular stapler device (Covidien, Mansfield, MA) was used to accomplish a side-to-end anastomosis. The operation concluded with closure of the cervical and abdominal incisions in layers.

Ergonomic Evaluation
All operations were performed by the same senior surgeon with naked visual acuity of 0.3 in left eye and 0.5 in right eye (corrected visual acuity, 1.0). During the thoracic procedure, the surgeon’s spontaneous eye blink was recorded intermittently by a stand-by observer using a hand-held iPhone (Apple Inc, Cupertino, CA). The video was captured every 5 minutes and lasted for 1 minute in each segment. After the operation, the same observer reviewed the video, and the frequency of the blink rate was recorded manually to show the surgeon’s mental workload after the thoracic procedure. The frequency was recorded as blinks per minute at the beginning (R₁) and at the end (R₂) of the thoracic stage, and the variation of the blink rate was recorded as \( R₁ - R₂ \). At the end of the thoracic stage, the surgeon was asked to record his symptoms referable to the musculoskeletal system on a rating scale from 1 (uninfluenced) to 10 (maximum fatigue). The data collected at the thoracic stage were compared between the two approaches of MIE.

Statistical Analysis
Clinical data for all patients were collected from the clinical database of our institution by trained surgical coordinators and tabulated using Excel software (Microsoft Corp, Redmond, WA) for further analysis. Statistical analysis was undertaken using SPSS software (SPSS, Inc, Chicago, IL). Variables were compared using the Student t test and the \( \chi^2 \) test. A two-sided \( p \) value of less than 0.05 was considered statistically significant.

Results
Clinical Features
Patients were recruited from October 2012 through the end of June 2013, and 67 consecutive patients were deemed eligible for MIE at the Zhongshan Hospital of...
Fudan University (1 patient declined to participate). After enrollment and randomization, 35 patients were allocated to the PP group, and 32 were allocated to the DP group. The flow diagram of allocation is shown in Figure 1.

All patients underwent thoracic esophagectomy without conversion to open thoracotomy. The thoracic stage was longer in the DP than in the PP (87 ± 24 minutes vs 68 ± 22 minutes, \( p < 0.001 \)), and the volume of blood loss was higher in the DP than in the PP (89 ± 18 mL vs 67 ± 16 mL, \( p < 0.001 \); Table 1).

Ergonomics

At the beginning of the operation, the surgeon’s eye blink rate (\( R_1 \)) was comparable whether he was to operate on patients in the DP or the PP (10.6 ± 2.3 blinks/min vs 11.3 ± 3.5 blinks/min, \( p = 0.333 \)). At the end of thoracic stage, the blink rate (\( R_2 \)) was lower in DP (6.0 ± 2.2 blinks/min vs 9.1 ± 2.6 blinks/min, \( p < 0.001 \)), whereas the variety of blink rates (\( R_1 - R_2 \)) was significantly more with patients operated on in DP than in PP (3.0 ± 1.4 blinks/min vs 1.2 ± 0.9 blinks/min, \( p < 0.001 \)). The surgeon’s blink rate and its variation are shown in Figure 4. At the end of thoracic stage, surgeon’s recorded musculoskeletal system complains was significantly higher in DP than in PP (6.29 ± 1.54 vs 3.13 ± 2.82, \( p < 0.001 \); Table 2).

Mortality and Morbidity

No patient deaths occurred intraoperatively in either group. Complications were observed in 19 patients (25.71% in PP vs 31.25% in DP, \( p = 0.616 \)). The rates of the most common complications after MIE—anastomotic leakage (8.57% in PP vs 9.38% in DP, \( p = 0.754 \)), pulmonary complications (5.71% in PP vs 12.50% in DP, \( p = 0.587 \)), and hoarseness (8.57% in PP vs 6.25% in DP, \( p = 0.917 \))—were also similar in DP and PP. There was no significant difference in deaths at 30 days between the two groups. The details regarding mortality and morbidity are summarized in Table 3.

Comment

In this randomized controlled trial of patient positioning for thoracoscopic MIE for the treatment of esophageal cancer, the PP was ergonomically superior to the DP, and the operating time was less with patients in the PP than in the DP. Thus, the PP should be considered for this difficult and demanding operation.

Because minimally invasive surgical procedures have become popular in the treatment of esophageal cancer, evidence has shown that the patients benefit from this less traumatic procedure compared with thoracotomy [11, 12]. However, esophagectomy is a technically demanding procedure associated with heavy physical demands on surgeons. Meanwhile, the surgeons’ workload might increase due to the increased difficulties of the operation [13], especially when the procedure is performed thoracoscopically and laparoscopically. Therefore, it is appropriate to evaluate, as we have, the ergonomics of MIE to identify strategies that could decrease the surgeon’s physical stress.

The optimal patient position for thoracoscopic esophagectomy has been controversial. Advantages of both the DP and PP in the MIE have been reported [14, 15]. However, none of these studies was a randomized controlled trial, and the conclusions drawn might have been affected by differences in the operators’ previous experiences [16]. This study directly compared the prone and decubitus positions, and the surgeon’s experience with the two approaches was enough to reach the learning curve plateau, as has been defined [17]. Also, the patients were enrolled over a relatively short interval of 8 months from a single center, which likely reduced the chance for technical bias due to improvements in MIE during the course of the study.

We recorded the surgeon’s eye blink responses as a marker of visual attention and mental stress [18, 19]. Reduction in the frequency of blinking has been reported to correlate with increased mental demands [20]. We found that, indeed, the surgeon’s rate of blinking declined with operations on patients in either the prone or decubitus positions, which likely is evidence of the heavy mental and physical demands on operators during MIE. We also found differences in the reduction

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Table 1. Clinical Features

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>PP (n = 35)</th>
<th>DP (n = 32)</th>
<th>( p ) Value</th>
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</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>60.5 ± 7.3</td>
<td>60.9 ± 8.4</td>
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</tr>
<tr>
<td>Sex</td>
<td>0.946</td>
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<td></td>
</tr>
<tr>
<td>Male</td>
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<td>24</td>
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</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Upper</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Middle</td>
<td>22</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Histologic type</td>
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<td></td>
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</tr>
<tr>
<td>Squamous cancer</td>
<td>33</td>
<td>29</td>
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</tr>
<tr>
<td>Adenocarcinoma</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Stage</td>
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<td></td>
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<td>T2</td>
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<td>7</td>
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</tr>
<tr>
<td>T3</td>
<td>21</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>23.4 ± 4.1</td>
<td>22.7 ± 3.9</td>
<td>0.477</td>
</tr>
<tr>
<td>ASA</td>
<td></td>
<td></td>
<td>0.976</td>
</tr>
<tr>
<td>1</td>
<td>13</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>22</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Thoracic duration, min</td>
<td>68 ± 22</td>
<td>87 ± 24</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Abdominal duration, min</td>
<td>55 ± 21</td>
<td>51 ± 17</td>
<td>0.397</td>
</tr>
<tr>
<td>Blood loss, mL</td>
<td>89 ± 18</td>
<td>67 ± 16</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Lymph nodes harvested, No.</td>
<td>18.2 ± 2.9</td>
<td>15.4 ± 3.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Length of stay, days</td>
<td>9.4 ± 3.6</td>
<td>10.8 ± 4.3</td>
<td>0.152</td>
</tr>
</tbody>
</table>

* Continuous data are presented as mean ± standard deviation and categoric data as the number.  
  a By the Student \( t \) test.  
  b By the \( \chi^2 \) test.  
  d By the Fisher exact test.  
  e Harvested during the thoracic stage.

ASA = American Society of Anesthesiologists; BMI = body mass index; DP = decubitus position; PP = prone position.
of the surgeon’s eye blinks with the patient placed in the PP or DP.

Ergonomically, we recorded difference in the variety of eye blinks between the PP and DP in this study, which could be explained by the following reasons: Firstly, intraoperative bleeding could affect on the surgeon’s ocular focus during mobilization of the esophagus; with the patient in the DP, blood accumulates in the esophageal bed because the esophagus lies in the deepest part of the chest. In the PP, the esophageal bed is at the apex of the field and the blood will drain spontaneously [5]. The relatively clear surgical field could lessen the demands on the surgeon.

Secondly, mediastinal lymphadenectomy was facilitated in the PP. As was reported by previous publications [21, 22], the PP affords good visualization around the subaortic area for exposure of the left recurrent laryngeal nerve and a relatively clear surgical field. These features could facilitate the surgeon’s focus on the target nerve. Because esophageal mobilization and lymph node dissection are major components of thoracoscopic esophagectomy, use of the prone position may reduce the physical and mental demands of the surgeon.

In an ergonomic analysis of the thoracic surgeons in Europe, most respondents had discomfort complaints in the neck, shoulder, or back after thoracoscopic operations [23]. Therefore, we thought it relevant to query our surgeon about musculoskeletal symptoms he might have at the end of the thoracic stage of his esophageal resections. Although the evaluation was subjective, DP was associated with strikingly more symptoms than was PP. As was described by Xiao and associates [24], an optimal posture improved the surgeon’s ergonomics during the operation. In the DP, the surgeon’s shoulder was kept in abduction with both arms flexed, whereas in the PP, the surgeon’s shoulder was kept in adduction with extended arms throughout the procedure. On the other hand, because the esophagus was located in the posterior mediastinum, a deflated lung without retraction would interfere with its mobilization [25]. In the PP, the right lung is spontaneously dislocated by gravity and pneumothorax. With the patient in the DP, however, an assistant is needed to retract the lung

Table 2. Ergonomic Evaluation

| Variable                  | PP Mean ± SD | DP Mean ± SD | p Value
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Eye blinks, rate/min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>10.6 ± 2.3</td>
<td>11.3 ± 3.5</td>
<td>0.333</td>
</tr>
<tr>
<td>R2</td>
<td>9.1 ± 2.6</td>
<td>6.0 ± 2.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>R1 – R2</td>
<td>1.2 ± 0.9</td>
<td>3.0 ± 1.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>MSS scoreb</td>
<td>3.13 ± 2.82</td>
<td>6.29 ± 1.54</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

* By the Student t test.  b Musculoskeletal symptom (MSS) scores were recorded at the end of thoracic stage in a rating scale (1 = uninfluenced; 10 = maximum fatigue) to evaluate the surgeon’s symptoms referable to the musculoskeletal system.

DP = decubitus position;  PP = prone position;  R1 = rate of eye blinks at the beginning of the procedure;  R2 = rate of eye blinks at the end of the procedure;  SD = standard deviation.

Table 3. Mortality and Morbidity

| Variable                  | PP No. | DP No. | p Value
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>0</td>
<td>0</td>
<td>…</td>
</tr>
<tr>
<td>Morbidity</td>
<td>9</td>
<td>10</td>
<td>0.616†</td>
</tr>
<tr>
<td>Anastomotic leakage</td>
<td>3</td>
<td>3</td>
<td>0.754‡</td>
</tr>
<tr>
<td>Pulmonary complication</td>
<td>2</td>
<td>4</td>
<td>0.587‡</td>
</tr>
<tr>
<td>Hoarseness</td>
<td>3</td>
<td>2</td>
<td>0.917‡</td>
</tr>
<tr>
<td>Wound infection</td>
<td>1</td>
<td>0</td>
<td>0.964‡</td>
</tr>
<tr>
<td>Delayed gastric emptying</td>
<td>0</td>
<td>1</td>
<td>0.964‡</td>
</tr>
</tbody>
</table>

* By the χ² test.  † By the Fisher exact test.
during the thoracic stage [26], an activity that could interrupt the desired continuous mobilization of the esophagus [9] and increase the surgeon’s physical effort and discomfort.

Because there was only 1 assistant during the prone MIE, the surgeon has more room to stand at the table and personnel requirements decrease. In addition, the half-hour longer operative time required for the thoracic stage of esophagectomy with the patient in the DP than in the PP also adds to the surgeon’s physical and mental exertion.

In terms of the perioperative results, the morbidity and mortality rates were close between the DP and the PP, and conversion to thoracotomy was not recorded in either group, suggesting that the two positions were both safe and feasible for thorascoscopic esophagectomy. However, the PP shortened the procedure and was ergonomically superior to the DP, which might add additional evidence on the comparison between the two positions for the surgical resection of esophageal cancer.

Besides the relatively small patient volume, the main limitation of this study was its application of subjective parameters, which resulted in an ergonomics evaluation in an unblinded study. Meanwhile, the analysis was restricted to the surgeon, without further measurement on the assistant surgeon and scrub nurses. Further studies using objective measurement on larger populations are required to confirm these findings.

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References
DISCUSSION

DR SHANDEL BLACKMON (Houston, TX): Dr Shen, I have one quick question for you. When doing an ergonomic study, it seems also equally important to look at where you are placing your monitor. And in some of your pictures, it looked as though those patients that were in the decubitus positions, the surgeons were craning their neck around to see the monitor. Did you take that into effect, the position of the monitor?

DR SHEN: In previous studies on ergonomics, the monitors, especially the levels of the monitors, the position of the monitors, has ergonomic effects. However, this was in China, not in the United States, we only have 1 monitor for each operation. So in the decubitus position, we let the surgeons see well, and the assistant surgeons turn their heads.

DR BLACKMON: You need to include the assistant more.

DR SHEN: So it will generate more physical workload as well.

DR DANIEL BOFFA (New Haven, CT): Did you compare any of the other parameters that reflect the quality of the operation, like the number of lymph nodes and length of stay?

And did both groups represent the same part of your learning curve, where you had just started doing the decubitus, or were they both about the same level of your experience?

DR SHEN: Firstly, we do record the number of lymph node dissections. It was published before, that in the prone position, we can produce more lymph nodes compared with the decubitus position. It was published in the Journal of American College of Surgeons in 2012. Because you know that the lymph node dissection, especially along the bilateral recurrent laryngeal nerves, is much easier in the prone position, the prone position would lead to a relatively larger number of lymph nodes compared with the decubitus position. That is the first question.

And the second question, you mentioned other parameters. In ergonomic evaluation in surgery, some papers tell the heart rate. The variation of the heart rate would be recorded. But I think it would interfere with the surgeon’s performance of the surgical resection of the esophageal cancer. So we just use the eye blink rate, because it is a very easy method.

DR STEPHEN YANG (Baltimore, MD): Dr Shen, congratulations. That was a very nice talk. I just have a quick question. Sometimes the anesthesiologists have a lot of pushback. They do not want to put the patient in the prone position, because they do not have as much access to intravenous venous catheters, the airway, et cetera. How did you convince your anesthesiologist to do that?

DR SHEN: We have the second best anesthesiology department in our hospital. And you know that we turned the patient from decubitus or prone position to supine, and all patients were reintubated. We took several minutes, about 20 minutes, to do the anesthesia switch from the prone or the decubitus position to the supine position, between the thoracic stage to the abdominal stage. It is an easy job in our hospital.

DR YANG: Well, I guess you need the best anesthesiologist.

DR SHEN: The second best.

DR YANG: You should get the best though. But the question is more for the anesthesiologists, because they are worried they do not have the access. Were there any situations where you had to emergently reposition the patient from the prone position for other reasons?

DR SHEN: I see your question, is that if a bleeding occurred or something major occurred that we should turn a special position to another special position. Usually in the prone position, we know that it is not easy to do the blood control, yes.

Actually, the morbidity and the mortality were comparable between the two groups, and we do not have many cases of bleeding during the thoracoscopic esophagectomy. So I think the conversion from one position to another position is not a frequent happening event in our institute.

DR BLACKMON: Excellent, thank you. Good job.