A clinical retrospective study comparing thoracic epidural catheterization between awake and anesthetized patients.

T.-Y. Sung¹, H.-J You¹, P. S. Kang¹

¹Konyang University Hospital, Konyang University College of Medicine, Dept of Anaesthesiology & Pain Medicine, Daejeon, Korea, Republic of

Background

Conducting the regional anesthetic blocks including epidural catheterization has been well established in anesthetized pediatrics. However, the clinical outcomes and safety of thoracic epidural catheterization in anesthetized adult patients have not been well evaluated.

Materials and Methods

Medical records of 549 consecutive patients who had received thoracic epidural catheterization before ($n = 303$) or after ($n = 246$) induction of anesthesia for major abdominal surgeries were reviewed retrospectively. We compared the procedure related clinical differences and complications between awake and anesthetized adult patients.

Results

The incidence of radicular pain during the procedure was 1.7 % ($n = 5$) of patients in awake. The time for epidural catheterization (median [Q1-Q3], 1.1 [0.7-2.0] vs. 0.7 [0.5-1.2] min, $P < 0.001$) and the number of attempts for epidural catheterization (1 [1 - 3] vs. 1 [1-2], $P = 0.003$) were increased in awake than anesthetized patients. The incidence of dura puncture, vascular injury and postoperative paresthesia were similar between two groups.

The median surgical site pain score using numerical rating scale (0 = no pain, 10 = worst pain imaginable) was lower in awake than anesthetized patients (3 vs. 4 on postoperative day 1, $P < 0.001$, and 2 vs. 3 on postoperative day 3, $P = 0.002$). Serious complications including meningitis, epidural abscess, epidural hematoma, spinal cord injury, spinal cord ischemia and paraplegia were not observed in both groups.

Conclusion

Overall complications of thoracic epidural catheterization were similar regardless anesthesia state of patients. However, long-term follow-up studies in a larger number of patients are needed to ensure the safety of thoracic epidural procedure in anesthetized adult patients.

Table 1. Measurements during epidural catheterization

	Awake group ($n = 303$)	Anesthetized group ($n = 246$)	P
The time for catheterization, min	1.1 [0.7 - 2.0]	0.7 [0.5 - 1.2]	< 0.001
Number of attempts	1 [1 - 3]	1 [1 - 2]	0.003
The easiness of catheter insertion (Easy/Difficult)	208 (68.6%) / 95 (31.4%)	177 (72%) / 69 (28.0%)	0.400
Radicular pain	5 (1.7%)	NA	NA
Dura puncture	3 (1.0%)	2 (0.8%)	> 0.999
Vascular injury	32 (10.6%)	32 (13.0%)	0.374

Values are expressed as median [Q1 - Q3] or number (%). NA = not applicable.

Table 2. Measurements after epidural catheterization

	Awake group ($n = 303$)	Anesthetized group ($n = 246$)	P
PCA infusion duration, (h)	75.0 [68.0 - 80.0]	75.5 [68.5 - 82.6]	0.070
Thoracic back pain			
Incidence	22 (7.3%)	20 (8.1%)	0.703
Maximal back pain, (NRS)	2.0 [1.0 - 3.0]	1.0 [1.0 - 2.8]	0.128
Operation site pain, (NRS)			
Postoperative day 1	3 [2 - 4]	4 [3 - 5]	< 0.001
Postoperative day 3	2 [2 - 3]	3 [2 - 4]	0.002
Headache	10 (3.3%)	5 (2.0%)	0.365
Nausea	8 (2.6%)	6 (2.4%)	0.882
Vomiting	2 (0.7%)	1 (0.4%)	> 0.999
Urinary retention	4 (1.3%)	3 (1.2%)	> 0.999
Dizziness	1 (0.3%)	2 (0.8%)	0.590
Pruritus	2 (0.7%)	1 (0.4%)	> 0.999
Constipation	0 (0%)	1 (0.4%)	0.448
Paresthesia	7 (2.3%)	6 (2.4%)	0.921
Upper extremity	1 (0.3%)	2 (0.8%)	0.590
Lower extremity	6 (2.0%)	4 (1.6%)	> 0.999
Serious complications	0 (0%)	0 (0%)	NA

Values are expressed as median [Q1-Q3], number (%). NRS = numerical rating scale (0 = no pain, 10 = worst pain imaginable), NA = not applicable. Serious complications include meningitis, epidural abscess, epidural hematoma, spinal cord injury, spinal cord ischemia and paraplegia in specified period.