**Results:** The rate for successful intubation of McGrath? MAC was equal to Glidescope? Ranger and Macintosh laryngoscopes in both normal and difficult airway environments (respectively $p=0.05$ and $p=0.522$). The time for successful intubation of three devices shortened with increasing number of intubation attempts in both of airway environments ($p<0.000$). The intubation time of McGrath? MAC was also equal to Glidescope? Ranger and Macintosh laryngoscopes in both normal and difficult airway environments (respectively $p=0.183$ and $p=0.515$). The glottic view of McGrath? MAC was equal to Glidescope? Ranger (respectively $p=0.992$, $1.000$, $1.000$, $1.000$ in normal airway and $p=1.000$, $0.243$, $0.596$, $0.874$, $1.000$ in difficult airway) and superior to Macintosh laryngoscope (all $p<0.000$) on each attempt in both of airway environments.

**Conclusion:** The rate for successful intubation and intubation time with McGrath? MAC in novices were equal to Glidescope? Ranger and Macintosh laryngoscope. Novices achieved a significantly better glottic view with McGrath? MAC than Macintosh laryngoscope regardless of airway environments.

**Key Words:** McGrath? MAC, Videolaryngoscope
of score. And secondary outcome is pethidine treatment or not.

**Results:** Total 1465 trauma patients received pain control treatment. There was not a significant difference of pain score change between the 5 groups by initial analgesics, nefopam, ketorolac, pethidine, adding nefopam to ketorolac and adding nefopam to pethidine. Pethidine was necessary for 22 patients from 112 in nefopam group, 141 from 867 in ketorolac group and 29 from 121 in adding nefopam to ketorolac group with no statistically significant difference.

**Conclusion:** For trauma patient in emergency department additional nefopam is not more effect. However, effect of nefopam only is compare favorably with ketorolac only and petidine only group in changing of pain score.

**Key Words:** Trauma, Pain, Nefopam

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**A Retrospective Analysis of Anterior–Posterior Chest X–rays and Misplacement of Subclavian Central Venous Catheters: A Clue to Preventing Misplacement**

Department of Emergency Medicine, Ajou University School of Medicine, Suwon, Republic of Korea, Department of Radiology, Ajou University School of Medicine, Suwon, Republic of Korea

**Jung-hoon Yoon, M.D. · Young-gi Min, M.D. · Yoon-seok Jung, M.D. · Je Hwan Won, M.D. · Joonpil Cho, M.D. · Sang-cheon Choi, M.D.**

**Objective:** Determining anterior–posterior chest radiograph radiologic characteristics of misplaced subclavian central venous (SCV) catheters.

**Methods:** A retrospective case–control study was conducted for 51 adult patients who had misplaced SCVs from the emergency department during a 12–month period. The collected data included age, gender, diagnosis, side of catheterization, catheter misplacement, department and physicians’ residency year, ipsilateral transverse length of thorax, clavicle angle, and thickness of clavicle.

**Results:** The subclavian route was used 981 times (61.39%) out of all central venous catheterizations (n=1,599). There were 51 (5.2%) SCV catheter misplacements. Misplacement into the ipsilateral internal jugular vein happened 43 times (right: 41, left: 2), and into the contralateral brachiocephalic vein 8 times (right: 8, left: 0). In the anterior–posterior chest X–rays, clavicle angle of the misplacement group was 28.5±7.3° and that of the control group was 22.6±6.3° (95% CI 3.6 to 8.1, p=0.00). (Fig. 1) (Table 1)

**Conclusion:** Since the clavicle angle of the misplacement group was larger than that of the control group in the anterior–posterior chest X–rays, we infer that keeping minimizing the clavicle angle would be better for decreasing SCV catheter misplacement.

**Key Words:** Subclavian, Misplacement, Clavicle

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A: thickness of clavicle; B: clavicle angle; C: transverse length of thorax, ipsilateral

1) Thickness of clavicle was defined as the superior-inferior length at midpoint between sternal end and acromial end of clavicle.

2) Clavicle angle was defined as the angle between two vectors in AP chest X-ray: 1) the line bisecting the proximal portion of the clavicle, and 2) the horizontal line.

3) Ipsilateral transverse length of thorax was defined as the longest transverse length between spinous process of thoracic vertebrae and the most laterally located rib in radiographic images.