
Poster

[P27-9] P27-9: Pharmacokinetics and PK/PD

Chair: Kosuke Doki, Japan

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[P27-9-5] PK/PD analysis of postoperative nausea and vomiting in Japanese patients administered epidural fentanyl

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Background

Postoperative nausea and vomiting (PONV) is a major problem after surgery since the occurrence of PONV affects patients' prognosis. So far, several patients' characteristics are available to predict PONV. Famous Apfel score includes four factors: female, nonsmoking, postoperative use of opioids, and previous history of PONV or motion sickness. However, there are few studies focusing on the interaction between PK/ PD and PONV. Thus, we investigated the relationships between PONV and PK/PD of epidural fentanyl (FEN).

Methods

Sixty-two patients who underwent laparoscopic colon resection were enrolled. Patients were administered bolus FEN (1mg/kg) before surgery and FEN-induced symptoms (feeling floating, nausea, drowsiness) were checked 5 min after bolus FEN. Then, the continuous infusion of epidural FEN (15mg/h) was started during surgery for approximately 48 h. PONV was monitored for 24 h after finishing surgery. Blood samples were collected to measure plasma concentration of FEN and SNPs related to PK/PD (*CYP3A4*1G*, *CYP3A5*3*, *MDR1 C1236T*, *G2677A/T*, *C3435T*, *OPRM1 A118G*). Patients' characteristics including Apfel score's factors, laboratory data and nursing records were also collected.

Results

Thirty patients (47.6%) complained PONV. The levels of FEN that reached to steady state in patients with PONV were same levels as those in patients without PONV. Univariate analysis revealed that several factors including PD-related factors (bolus FEN-induced symptoms, *OPRM1 A118G* SNPs) and some of patients' characteristics (gender, smoking history, age) were associated with PONV, but not PK-related SNPs and laboratory data used. Multivariate analysis revealed the association of age and smoking history with PONV. The prediction of both occurrence and no occurrence of PONV exceed 70% when used the regression formula employing gender, smoking history, age, bolus FEN-induced symptoms and *OPRM1 A118G* SNPs.

Discussion

Although the number of patients was still limited, these results suggest that PD-related factors (bolus FEN-induced symptoms, *OPRM1 A118G* SNPs) and age together with Apfel score's factors would be useful to more precisely predict PONV in this population. We will demonstrate the results with additional registered patients in the meeting.

