Supplemental administration of droperidol shortened the time of recovery from general anaesthesia.

Yushi U. Adachi, Tomomi Mizutani, Saori Taharabaru, Maiko Satomoto, Tomohiro Tamura, Kimitoshi Nishiwaki
Department of Surgical Intensive Care Medicine, Nagoya University Hospital
Department of Anesthesiology, Nagoya University Graduate School of Medicine

Background and Goal of Study: The time of recovery from general anaesthesia is one of great concerns of anaesthesiologist in operating theatres. The surgical rooms include a plenty of facilities and a lot of medical staffs. The occupancy of the room by the delay of emergence from general anaesthesia is unpleasant. In our previous study, the supplemental administration of droperidol (Dro) decreased Bispectral Index values and reduced the required dose of volatile anaesthetics for maintenances without adverse effect. In the current investigation, we retrospectively evaluated the recovery time from anaesthesia with or without using Dro.

Material and Methods: The study was a single center and retrospective analysis. The successive 200 surgical adult patients without severe complication receiving ear-nose-throat minor surgery were reviewed. The cases were enrolled when the anaesthesia was maintained by inhalation of desflurane and continuous infusion of remifentanil with intubation. The patients’ characteristics, the time of anaesthesia and recovery, final dose of desflurane and remifentanil were compared. The recovery time was defined as the period between the end of surgery and the extubation.

Results and Discussion: The data from 66 cases were analyzed. There was no significant difference in patients’ background (Table). The supplemental administration of Dro significantly reduced the final dosing of desflurane immediately before the end of surgery and shortened the time of recovery (Fig.). The infusion rate of remifentanil was not different between the groups.

Conclusion: The results of the current investigation suggested that supplemental administration of Dro during general anaesthesia would be beneficial on the profile of recovery from general anaesthesia.

References: Satomoto M, et al. Korean J Anesthesiol. 2017; 70: 27-32. Adachi YU, et al. Masui. 2013; 62: 71-4.

Table. The background of the patients.

	Age (y)	Sex (m/f)	Height (cm)	Weight (kg)	Anesthesia Duration (min)	Droperodol dose (mg)
Control Group (Without droperidol)	58.0 (17.3)	18/16	159 (10.3)	58.6 (12.7)	220 (85.7)	1.03 (0.90)
Droperidol Group (Supplemental administration)	57.5 (18.0)	17/15	160 (9.9)	58.0 (11.9)	210 (123)	0

Data are expressed as mean (S.D.). There was no significant difference between groups.

Fig. The recovery time from general anaesthesia, the final concentration of desflurane and the final infusion rate of remifentanil immediately before the end of surgery. Data are expressed as mean and S.D. *: $P < 0.05$ between groups. N.S.: not significant ($P = 0.58$).

Conflict of interest: None throughout the study

Discussion: The results of current investigation demonstrated that the supplemental administration of droperidol immediately before the termination of general anesthesia using desflurane would shorten the required time of recovery without apparent complications.

Droperidol is one of butylophenon derivatives and a typical antipsychotic drug. Droperidol suppresses psychological activities and induces amnesic state. Moreover, droperidol significantly reduce the value of Bispectral Index (BIS) during inhalational general anaesthesia. Although the depth of anaesthesia would deepened after the supplemental administration of droperidol, the anaesthesiologist could decrease the concentration of volatile anaesthetics to maintain the depth and the recovery time at the end of general anaesthesia might be shortened.

Recently, Araki et al. (Anaesthesiology 2018; 128: 754-63) reported that droperidol augments both α and δ - θ bicoherences while shifting the α -bicoherence peaks to lower frequencies, and enhances the effect of sevoflurane anesthesia on the electroencephalogram (EEG) via γ -aminobutyric acid-mediated oscillatory network regulation.

Droperidol significantly changed the form of EEG, however, the effect on the depth of anaesthesia might be smaller than that of EEG in clinical settings.

A small dose of droperidol reduced the desflurane concentration needed to maintain a BIS of 50 in daily clinical settings (Satomoto et al. Korean J Anesthesiol 2017; 70: 27-32) . Co-administration of droperidol might provide a preferable effect on general anesthesia using volatile anesthetics. Droperidol could reduce a frequency of post operative nausea and vomiting. This effect is also an appropriate properties of drugs.

Conclusion: Droperidol enhance the hypnotic activities of volatile anaesthetics. The interaction can reduce the dose of anaesthetics, significantly. Thus, recovery might be accelerated after the termination of inhalation of anesthetics.