



ELECTRONIC SUPPLEMENTARY MATERIAL

Cho E *et al.*: Effective bolus dose of remimazolam for i-gel[®] insertion in nonparalyzed patients: a dose-finding study

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eTable Insertion condition grading scale with six categories

	1	2	3
(1) Resistance to mouth opening	no	significant	undue force required
(2) Resistance to insertion	no	significant	undue force required
(3) Swallowing	nil	slight	gross
(4) Coughing and gagging	nil	slight	gross
(5) Head or body movement	nil	slight	gross
(6) Laryngospasm	nil	partial	total

A total score for insertion conditions is calculated by adding up the swallowing, coughing and gagging, movement, and laryngospasm grades (categories 3–6). A score of 4 is considered as optimal conditions for i-gel® insertion.

eAppendix Simulation to evaluate the coverage of the confidence interval for the 95% effective dose of remimazolam

- **Simulation design:** data generation process

To mimic the situation in our study, we generated a dataset including 25 patients with more than 6 pairs of success/failure in the same direction. The starting dose and dose spacing were specified as 0.3 and 0.05, respectively. We considered the true dose–response curve to be the one derived by fitting a logistic regression curve with third-degree polynomials to our experiment data obtained from the isotonic regression curve.

Responses were generated based on the true dose–response curve. The simulated responses follow a binomial distribution with a probability p of success.

$$p = \frac{\exp(\beta_0 + \beta_1 \cdot \text{dose} + \beta_2 \cdot \text{dose}^2 + \beta_3 \cdot \text{dose}^3)}{1 + \exp(\beta_0 + \beta_1 \cdot \text{dose} + \beta_2 \cdot \text{dose}^2 + \beta_3 \cdot \text{dose}^3)}$$

- **Simulation design:** method for CI

Isotonic regression using the pooled adjacent violators algorithm (PAVA) was used to estimate ED_{50} and ED_{95} along with their confidence intervals (CIs) derived by bootstrapping.

- **Simulation design:** Performance evaluation

Coverage was calculated as the proportion of the total 100 simulation trials in which the 95% CI of ED_{95} contains the true ED_{95} value.

- **Simulation result**

The 95% CI that we have simulated exhibited a coverage of **72%**.

CI = confidence interval; ED_{50} = 50% effective dose; ED_{95} = 95% effective dose

