

INTRODUCTION

- Limited data exist on factors associated with diurnal sedative drug dose variations, particularly in extracorporeal membrane oxygenation (ECMO) patients.^{1,2}

OBJECTIVES

- Our objective was to explore factors associated with diurnal sedative drug dose variations.

METHODS

- Single centre retrospective cohort study including adults receiving continuous intravenous analgosedation (July 2021 to July 2023).
- We documented all intravenous (excluding bolus) of opioid (fentanyl) and sedative (midazolam and propofol) doses in the first 48 hours of admission.
- We assessed associations of diurnal drug dose variations hours with demographic and clinical factors including need for ECMO.

RESULTS

- We included 1277 patients; 166 (12.9%) received ECMO support.
- Median (IQR) age was 58 (42-70), 63.8% were male.
- Median (IQR) pain and RASS scores were 0 (0-0) and -3 (-2 to -4)
- ICU mortality was 19.7%

Table 1: Diurnal drug dose variations

| | ECMO | No ECMO | <i>p</i> |
|----------------|------------------|--------------------|----------|
| Fentanyl (mcg) | 0 (-350 to 450) | -60 (-675 to 300) | <0.001 |
| Midazolam (mg) | 0 (-38 to 36) | 6 (-23 to 30) | 0.12 |
| Propofol (mg) | 60 (-300 to 480) | -100 (-630 to 260) | <0.001 |

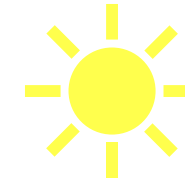
Continuous data as median (IQR). Comparisons using Wilcoxon Rank Sum Test.

Table 2: Multivariable linear regression models of diurnal drug dose variations

| Fentanyl | | | |
|-----------------|-------------|------------------|----------|
| | Effect size | 95% CI | <i>p</i> |
| Age | -5.17 | -7.53 to -2.81 | <0.001 |
| APACHE II score | 9.91 | 3.73 to 16.07 | 0.001 |
| Midazolam | | | |
| | Effect size | 95% CI | <i>p</i> |
| SOFA score | -1.59 | -2.93 to -0.25 | 0.02 |
| Propofol | | | |
| | Effect size | 95% CI | <i>p</i> |
| APACHE II score | 6.35 | 0.56 to 12.14 | 0.03 |
| ECMO | 216.41 | 108.45 to 324.36 | <0.001 |

Daytime: 7:00 – 19:00

Night-time: 19:01 – 06:59



CONCLUSIONS

- Diurnal drug dose variations was lower in ECMO patients receiving fentanyl and propofol.
- Diurnal drug dose variations were associated with age, APACHE II score and ECMO.

REFERENCES

- Mehta S et al. Variation in diurnal sedation in mechanically ventilated patients who are managed with a protocol alone or a sedation protocol and interruption. Crit Care. 2016; 20(1): 233.
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