ICU
MANAGEMENT & PRACTICE

Interventions Bundle Can Improve Sleep in the ICU

Sleep deprivation in intensive care patients is common, and may be associated with delirium. A UK study recently published in Anaesthesia set out to find out if implementing a bundle of non-pharmacological interventions, including environmental noise and light reduction, led to improved sleep and reduced incidence of delirium. The care bundle was based on previous research in the ICU setting and outside.

This cohort-based study was carried out at the Royal Preston Hospital in the UK in two parts, before and after the bundle was implemented. 167 patients were screened for delirium in the first part and 171 patients in the second part. The bundle was implemented over a 21 day period at a time of year when there would not be seasonal changes in light, noise and temperature. There were education and training sessions during this period several times a day. Compliance with the interventions was > 90%.

The interventions to reduce noise included: closing doors, turning monitoring equipment to night mode, reducing telephone volumes at night, and offering earplugs to patients. Light reduction included offering eyemasks to patients and using bedside lighting when carrying out patient care. Patient care intervention including completing care procedures before 23.00 where possible and orientating patients regarding time, place and date every eight hours. Patients were asked to complete the Richards Campbell Sleep Questionnaire each morning. Light and sound levels on the ICU were measured. In addition, nurses assessed whether patients were asleep or awake each hour.

All patients with a Richmond Agitation Sedation
Scale score of greater than 4 were screened for delirium using the Confusion Assessment Method for the ICU at 08:00, 14:00, 18:00 and where appropriate at 02:00 by a member of the research team.

Results

The bundle of interventions led to an increased mean (SD) sleep efficiency index (60.8 (3.5) before vs 75.9 (2.2) after, p = 0.031); reduced mean sound (68.8 (4.2) dB before vs 61.8 (9.1) dB
after, p = 0.002) and light levels (594 (88.2) lux before vs 301 (53.5) lux after, p = 0.003); and reduced number of awakenings caused by care activities overnight (11.0 (1.1) before vs 9.0 (1.2) after, p = 0.003). Introduction of the care bundle led to a reduced incidence of delirium (55/167 (33%) before vs 24/171 (14%) after, p < 0.001), and less time spent in delirium (3.4 (1.4) days before vs 1.2 (0.9) days after, p = 0.021). Increases in
sleep efficiency index were associated with a lower odds ratio of developing delirium (OR 0.90, 95% CI 0.84,Äì0.97).

Conclusion

The programme of reducing environmental noise and lighting in the ICU was effective in improving sleep and reducing incidence of delirium. The authors recommend that a similar programme should be implemented more widely, and they plan to repeat the study to see if the benefits can be replicated outside research conditions.

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