
Physicians Seek To Improve The Quality Of Sleep In ICU

"Current clinical-care protocols routinely and severely deprive critically ill patients of sleep at a time when the need for adequate rest is perhaps most essential," said Dr. Randall Friese, assistant professor of burn/trauma/critical care at UT Southwestern and lead author of a study appearing in today's issue of *The Journal of Trauma: Injury, Infection and Critical Care*.

"We haven't recognized the importance of prescribing sleep," said Dr. Friese, whose study is one of the first to examine the sleep patterns of surgical and trauma patients. "Patients in the ICU may look like they are sleeping, but they're not sleeping well. They are not getting the restorative stages that are required."

Sleep typically occurs at night in successive cyclical stages. Sleep begins in very superficial stages. These stages are followed by deeper, more restorative states, including rapid eye movement (REM) sleep. Although researchers continue to investigate exactly what happens in the brain during REM sleep, they do know that it is critical for restorative sleep.

Dr. Friese monitored the sleep patterns of 16 patients in the ICU at Parkland Memorial Hospital who had suffered traumatic injuries or had undergone intra-abdominal surgical procedures. The patients had been in the ICU two to 10 days. Patients suffering brain injuries were excluded from the study because such injuries typically illicit abnormal sleep patterns.

After monitoring the patients' brain waves in a specially equipped bed for up to 24 hours, Dr. Friese found that patients in the ICU received an acceptable amount of sleep time, but that the sleep patterns were fragmented and significantly abnormal. Patients in the ICU spent 96 percent of their sleep cycle in superficial stages, compared to normal sleep, in which up to 50 percent is spent in the restorative stages.

The next step, Dr. Friese said, is to design a clinical trial that makes the ICU environment more conducive to sleep and then monitor the patients' outcomes. Some proposed steps to decrease disturbances in the ICU include adjusting monitoring machines so that alarms don't wake up sleeping patients, providing patients ear plugs and eye shields, dimming the lights, and using pharmacological sleeping aids.

"There are two major things contributing to abnormal sleep in these patients -- the pathophysiology of the disease process itself and the stressful environment of the ICU," Dr. Friese said. "If we can neutralize the stressful environment, maybe we can shorten the hospital stay, lower infection risks and increase patient wound healing."

Dr. Ramon Diaz-Arrastia, professor of neurology and one of the study's authors, said the investigation demonstrated "that surgical patients in the ICU have essentially no restorative sleep.

"Restorative sleep is most abundant during the later part of sleep -- it is sometime between 3 a.m. to 6 a.m. that the bulk of this stage of sleep occurs. It is likely that with some straightforward measures, such as changing the schedule of nursing intervention, we may help these patients attain the restorative sleep that could improve their outcomes."

Other UT Southwestern researchers involved in the study were senior author Dr. Larry Gentilelo, professor of surgery; Dr. Heidi Frankel, professor of surgery; and Dara McBride, senior research nurse.

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