

Working overnights by physicians not linked to significantly increased risk of complications

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Attending surgeons and obstetricians/gynecologists who worked nighttime hours did not have a significantly greater rate of complications for procedures performed the next day, but having less than six hours of opportunity for sleep between procedures was associated with an increased rate of surgical complications, according to a study in the October 14 issue of *JAMA*, a theme issue on surgical care.

Jeffrey M. Rothschild, M.D., M.P.H., of Brigham and Women's Hospital, Boston, presented the findings of the study at a *JAMA* media briefing in Chicago.

There has been increasing public attention on the role of resident physicians' [fatigue](#) in the occurrence of [medical errors](#). In 2003, work hour limits were implemented for resident physicians in the U.S. Work hours of attending physicians are not restricted. "Little is known about the frequency of elective surgical and obstetrical/gynecologic procedures by attending physicians who participate in emergency procedures the night before. Even less is known about the risks of complications during these postnighttime procedures," according to background information in the article.

Dr. Rothschild and colleagues examined the relationship between nighttime work hours, [sleep](#), and rates of complications in procedures performed the next day. The researchers analyzed data on procedures

performed from January 1999 through June 2008 by attending physicians (86 surgeons and 134 obstetricians/gynecologists) who had been in the hospital performing another procedure involving adult patients for at least part of the preceding night (12 a.m.- 6 a.m., postnighttime procedures). A total of 919 surgical and 957 obstetrical postnighttime procedures were matched with 3,552 and 3,945 control procedures, respectively. Control procedures included those of the same type performed by the same physician on days without preceding overnight procedures.

The researchers found that complications occurred in 101 postnighttime procedures (5.4 percent) and 365 control procedures (4.9 percent). There was no difference detected in types of complications between postnighttime and control procedures. The most common surgical complications were organ injuries and bleeding.

"Among postnighttime cases, a higher rate of procedural complications occurred when there were 6 or fewer hours of sleep opportunity (6.2 percent) compared with postnighttime procedures in which there were more than 6 hours of sleep opportunity (3.4 percent); this was predominantly due to operating room (surgical) complications (8.5 percent vs. 3.1 percent, respectively). Postnighttime procedures performed when work duration exceeded 12 hours showed nonsignificantly higher complication rates compared with shifts of 12 hours or less (6.5 percent vs. 4.3 percent)," the researchers write. "These data suggest that attending physicians, like residents and nurses, may be at increased risk of making errors when sleep deprived or working extended shifts."

"Our data suggest that the business as usual of a 'limitless work week' for attending physicians is not optimal for patient care," they add. The authors offer several initiatives that could lessen the risks of unsafe levels of fatigue during procedures, including having large physician

groups avoid scheduling elective procedures following overnight on-call responsibilities; implementing a culture of teamwork and critical redesign of schedules; and, when possible, having adequate backup personnel available to relieve fatigued physicians.

"For situations in which it is necessary for attending physicians to conduct life-saving procedures following overnight work, effective strategies to minimize the effects of fatigue should be adopted into practice," the authors conclude.

More information: *JAMA*. 2009;302[14]:1565-1572

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