DANGEROUS SNOOZING
Surgery, Sleep Apnea, and Diabetes

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Occupation
Anesthesiologist at the University of Rochester in New York

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Control of breathing

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If you have sleep apnea, it isn’t just a problem in your own bed. If you have surgery, it can strike in your recovery room at the hospital as well. And when this happens, it can be dangerous, says Denham Ward, an anesthesiologist at the University of Rochester.

It’s estimated that as many as 18 million Americans have sleep apnea, which causes a variety of problems from daytime sleepiness to high blood pressure. During sleep apnea, breathing is briefly and repeatedly interrupted during sleep, sometimes as many as 60 times an hour. Normally when this happens, the sleeper snores, snorts, and
in effect wakes up enough to start breathing again.

What Ward has been seeing in his surgery patients with type 2 diabetes and sleep apnea is more troubling. “People with sleep apnea have major problems [with breathing] after surgery,” he says. And because obesity and sleep apnea are so closely linked, these problems are happening more frequently as more obese people are entering hospitals, he adds.

Ward has a hunch that the anesthesia drugs given during surgery may be a culprit. He wants to find out if this is true, and why.

**Bad Combination**

Anesthesia drugs, in general, suppress breathing. This isn’t normally a problem in the operating room when doctors and nurses are there to keep watch. But after surgery, when someone is recovering and sleeping in his or her hospital room, the lingering effects of these drugs can worsen sleep apnea.

In addition, a person’s diabetes could make matters worse. Some studies, in animals, suggest that high blood glucose makes it harder for the body to detect low oxygen.

The theory goes something like this: When you’re home in bed and have sleep apnea, your body jolts you awake to get your breathing back on track. Not restful, but not deadly, either. But if you’re drugged and you have diabetes, your body is less able to jolt itself awake and start breathing.

“Are we getting a really bad combination here?” asks Ward. “We may have someone with type 2 diabetes and sleep apnea. They undergo surgery, are given some morphine for pain relief, and this may take away their protective instincts in terms of breathing.”

**Mountain Climbers In Bed**

So, Ward is studying how the relationship between glucose and oxygen affects breathing. First, he’s studying 12 men and women without diabetes, and next he plans to study the same things in people with type 2 diabetes.

A person comes into the University of Rochester’s General Clinical Research Center the evening before the study. The next morning, he or she lies down on a bed and nurses connect an IV to the person’s arm. Through the IV, the nurses make the person’s blood glucose either high (by injecting glucose) or low (by injecting insulin).

The person wears an anesthesia mask so that Ward can lower the amount of oxygen he or she breathes.

Without as much oxygen, it’s like being a mountain climber at 18,000 feet, says Ward, except the person is lying down in bed. Meanwhile, the nurses and Ward monitor the person’s breathing.

“They get a little uncomfortable,” says Ward, especially those with both low glucose and low oxygen. “It’s like they’re exercising, but they’re lying down in bed.”

Ward is most intrigued by what happens to these people when they have high glucose and low oxygen. This is similar to what someone with type 2 diabetes and sleep apnea might experience post-surgery.

If Ward is able to show that this combination of diabetes, sleep apnea, and surgery is dangerous, physicians may need to more carefully control at-risk patients’ blood glucose levels, he says. They may need to consider different drugs and more rigorous monitoring to make sure such patients are breathing properly after going under.
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