

Opioids linked to higher risk of pneumonia in older adults

September 22 2011

Opioids -- a class of medicines commonly given for pain -- were associated with a higher risk of pneumonia in a study of 3,061 adults, aged 65 to 94, e-published in advance of publication in the *Journal of the American Geriatrics Society*. The study from researchers at Group Health Research Institute and the University of Washington (UW) also found that benzodiazepines, which are drugs generally given for insomnia and anxiety, did not affect pneumonia risk.

"[Pneumonia](#) is a common infection that can have serious consequences in [older adults](#)," said study leader Sascha Dublin, MD, Ph.D, a Group Health Research Institute assistant investigator and Group Health primary care physician.

"Opioids and [benzodiazepines](#) work in different ways, but both can decrease the breathing rate. Both are also sedatives, which can increase the risk of aspiration." Aspiration is inhaling material (including saliva or food particles) from the mouth into the lungs, which can lead to pneumonia.

A 2009 study estimated that two million Americans age 65 and older received long-term opioid treatment for non-cancer pain. Prescription opioid use has been on the rise in the United States. In earlier Group Health research, the use of chronic [opioid therapy](#) for chronic non-cancer pain doubled in the prior decade. And a 1998 report found that one in 10 older Americans used benzodiazepines.

"In animal studies, some opioids -- including morphine, codeine, and fentanyl -- harm the immune system, which also might contribute to pneumonia," said Dr. Dublin. She and her research team hypothesized that risk of pneumonia would be higher in people using opioids or benzodiazepines than in people not using these medications, and would be highest for opioids that suppress the immune system. Study subjects were members of Group Health Cooperative, a nonprofit [health care system](#) with extensive computerized pharmacy, laboratory, and medical records that were used in the analysis.

Dublin and colleagues conducted a "case-control study," matching patients who had pneumonia during the study period of 2000 to 2003 ("cases") with similar patients who did not have pneumonia ("controls"). All were living in the community, not hospitalized or in nursing homes, and the researchers excluded people whose immune systems were suppressed.

The researchers measured whether people with pneumonia were more likely than controls to have taken opioids or benzodiazepines before the start of their illness. Among pneumonia cases, 13.9 percent were using opioids and 8.4 percent were using benzodiazepines. In subjects without pneumonia, 8.0 percent were using opioids and 4.6 percent were using benzodiazepines.

Statistical analysis by the researchers showed that:

- Patients taking long-acting opioids such as sustained-release morphine were more than three times as likely to get pneumonia as were those not taking opioids.
- Recently starting use was a risk factor: During their first 14 days of use, patients who took opioids were more than three times as likely to get pneumonia as were those not taking opioids.

- Patients using immunosuppressing opioids were nearly 1.9 times as likely to get pneumonia as were those not using opioids.
- Use of opioids for a longer time period, defined as three months or more before getting pneumonia, was not associated with infection.
- Taking benzodiazepines did not affect the risk of getting pneumonia.

This was the first large epidemiological study to look at how opioid use affects the risk of getting pneumonia in a general population. It lays the foundation for research on additional questions about the safety of opioid drugs in older Americans.

"Benzodiazepines don't seem to be associated with increased risk of pneumonia," said Dr. Dublin. "But our results mean that it is crucial to look more closely at opioid prescriptions and infections."

Provided by Group Health Research Institute

Citation: Opioids linked to higher risk of pneumonia in older adults (2011, September 22) retrieved 9 April 2024 from

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