Misuse of over-the-counter pain medication is potential health threat

30 May 2012

A significant number of adults are at risk of unintentionally overdosing on over-the-counter (OTC) pain medication, according to a new study in the US by Dr. Michael Wolf, from Northwestern University in Chicago, and his colleagues. Their work, looking at the prevalence and potential misuse of pain medication containing the active ingredient acetaminophen as well as the likelihood of overdosing, appears online in the *Journal of General Internal Medicine*.

Many adults in the US regularly use OTC pain medication containing the active ingredient acetaminophen, the most commonly used OTC pain medication in the US. They take it either on its own or in combination with other drugs, which may also contain acetaminophen. The ease of access to OTC drugs presents a challenge to patient safety as many individuals may lack the necessary health literacy skills to self-administer these medicines appropriately. Indeed, individuals make independent decisions that match an OTC product to a self-diagnosed symptom or condition. Worryingly, acetaminophen overdose is the leading cause of acute liver failure.

Wolf and colleagues interviewed 500 adult patients receiving care at outpatient general medicine clinics in Atlanta and Chicago between September 2009 and March 2011. Over half the patients reported some acetaminophen use and 19 percent were 'heavy users' i.e. they had taken it every day, or at least a couple of times a week, during the previous six months.

The researchers tested whether these patients understood the recommended dosage and were able to self-administer OTC acetaminophen appropriately. Firstly, could they work out the proper dosing of a single OTC medication over a 24-hour period? Secondly, what was the risk of patients 'double-dipping', or simultaneously taking two acetaminophen-containing products, and thereby exceeding the recommended dose?

To assess proper dosing, the participants were given five OTC drug bottles and, for each one, were asked to imagine that they took the first dose at time X, and wanted to take the maximum dose of this medicine in one day. They were then asked to show the researcher how many pills and at which times they would need to take them for a full 24-hour day.

To assess 'double-dipping', the patients were told to imagine they were taking a maximum dose of a primary OTC drug and asked whether it would be safe to also take a second medicine with the primary medicine - both of which contained acetaminophen.

Wolf and team found that nearly a quarter of the participants were at risk of overdosing on pain medication using a single OTC acetaminophen product, by exceeding the dose of four grams in a 24-hour period; 5 percent made serious errors by dosing out more than six grams. In addition, nearly half were at risk of overdosing by 'double-dipping' with two acetaminophen containing products.

The authors conclude: "Our findings suggest that many consumers do not recognize or differentiate the active ingredient in OTC pain medicines, nor do they necessarily closely adhere to package or label instructions. Given the prevalence of the problem, risk of significant adverse effects, and lack of a learned intermediary i.e. a physician to guide decision making and counsel consumers on proper use, we believe this to be a serious public health threat requiring urgent attention."

More information: Wolf MS et al (2012). Risk of unintentional overdose with non-prescription acetaminophen products. *Journal of General Internal Medicine*; DOI: 10.1007/s11606-012-2096-3

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