VITAMINS MAY RAISE MORTALITY RISK

Dietitians Offer Tips on How to Decode Controversial Research

By Christin L. Seher, MS, RD, LD

"Is it OK to continue taking vitamins and other supplements, or should I stop taking them altogether?"

You may have heard this question from anxious clients shortly after the results of a controversial study recently hit the airwaves. The study found that multivitamins and some minerals raise the risk of death in postmenopausal women aged 55 to 69.

The study by Mursu and colleagues that appeared in the October 2011 issue of ***Archives of Internal Medicine***[1] received a frenzy of media coverage. The researchers analyzed longitudinal data on supplement use in more than 38,000 older women from the Iowa Women's Health Study and found an increased risk of all-cause mortality in women taking various vitamin and mineral supplements. Those associated with a higher risk of death included multivitamins, folic acid, B_6, iron, magnesium, zinc, and copper; the only vitamin or mineral associated with decreased mortality risk was calcium. In addition, there was a strong dose-dependent relationship with mortality in those who took supplemental iron.

Elevated risk of death remained after controlling for lifestyle factors such as fruit and vegetable intake, saturated fat consumption, alcohol use, smoking, and physical activity status as well as demographic factors and risk factors for cardiovascular disease (eg, diabetes, high blood pressure). The authors concluded that people should take supplements only for medical reasons, as specific nutrients may cause potential harm if consumed in excess.

Controversial research findings such as these are especially important to put into perspective for clients. Recent estimates suggest that more than 50% of Americans take some form of dietary supplement.[2] So what are nutrition professionals supposed to do when clients ask about a particular study? How should they counsel patients and help them understand breaking news about nutrition research? And when is it appropriate to change practice recommendations?

In this article, ***Today's Dietitian*** asked dietetics professionals these important questions and others to provide strategies for interpreting studies accurately and responsibly to steer clients in the right direction.

Above All, Be a Skeptic

When a controversial study hits the news, dietitians should evaluate it on their own to prepare themselves to answer questions. Dee Sandquist, MS, RD, LD, CDE, a spokesperson for the Academy of Nutrition and Dietetics (the Academy), urges RDs to read the actual study, not an article written about it. That way they can assess the study's strengths, weaknesses, and limitations before counseling clients.

Lona Sandon, MEd, RD, an assistant professor at the University of Texas Southwestern Medical Center and a spokesperson for the Academy agrees, adding that evaluating research with a little "healthy skepticism is good."

According to other experts, when reading new studies, dietitians should do the following:

• **Consider the study design.** Different study designs have various strengths, weaknesses, and limitations when it comes to drawing conclusions. "Epidemiologic studies are probably the most common studies presented in the media," says Sarah Drewes, MS, RD, LD, who works at the prevention research center at Case Western Reserve University. Drewes encourages RDs to first "note whether the study was conducted in a clinical setting that was controlled or a community setting. This can impact the reliability of the study and how easily the results and conclusions can be translated into everyday life."

Christine Swanson, PhD, MPH, RD, senior nutrition scientist in the Office of Dietary Supplements at the National Institutes of Health, says research articles must be well written and provide enough essential information to enable health professionals to evaluate their merits. Swanson says the Mursu study gives the reader enough information to conclude that it appears to be adequately designed. The study contains multiple data collection points to assess supplement intake and a large sample size to sufficiently power statistical analyses.

• **Examine the study's hypothesis.** Dietitians should ask themselves, "Was the question asked in the study the primary hypothesis?" Or "Did researchers sift through existing data with a question of interest?"

In the case of the Iowa Women's Health Study, the original hypotheses were related to the influence of lifestyle and dietary factors on chronic disease, cancer incidence, and mortality risk, not supplement use.[3] According to Swanson, while it's perfectly acceptable to do research in this fashion, she says asking questions about a set of data that weren't part of the original study design has some risk. In collecting self-reported

supplement use, she says the way in which a question is worded on the survey can impact what data participants provide. And if the question wasn't a primary research aim of the original study, you'll discover that the conclusions drawn may have limitations when you go back to retrospectively assess the data.

• **Evaluate the study sample.** Was the study done with human subjects? What were their characteristics? Knowing the sample is a crucial piece of information. Sandon explains, "Not all studies apply to everyone. If the subjects were postmenopausal women aged 65 and older, and your client is a 28-year-old new mom, the results likely don't apply. Unfortunately, many [news] articles that report the study du jour tend to leave out the details and context in which the results apply."

• **Look to the opinions of others.** Often, major research findings like those reported in the Mursu study are accompanied by a commentary or editorial in the same journal issue. Swanson says these critiques can be helpful in assessing the strengths and weaknesses of the research, as can consensus statements from government and professional organizations. The Office of Dietary Supplements provides consensus statements summarizing the latest research for various vitamin, mineral, and botanical supplements.

Nonetheless, dietitians should be cautious about changing their practice recommendations based on the results of any one study, regardless of how well it's designed.

RESOURCES

- American Council on Science and Health (www.acsh.org)
- *Good Stories, Bad Science* by Ruth Kava, PhD, RD (www.acsh.org/docLib/20050610_consumerActivist.pdf)
- Health News Review.org (www.healthnewsreview.org)

When to Change Practice Guidelines

Practice decisions should be based on a larger body of literature, Swanson says. Sandon agrees, adding that the best way to respond to new study results is to "look at the big picture or landscape of the available research literature. One study should not suddenly change your practice [recommendations]."

Sandquist says resources are available from the Academy, such as position papers, the evidence analysis library, and "Hot Topic" briefs to help dietitians make practice decisions.

Regarding the Mursu study, Swanson says the larger body of research indicates that taking dietary supplements is equivocal when it comes to disease prevention. "Since there's no effect of harm or benefit, it's up to the consumer," she says. "If you aren't taking [supplements], there's no evidence to say start but also no harm in continuing to take them."

As nutrition professionals, "We should always practice with the concept of 'do no harm' in mind," Sandon says. "If you're not confident that the new practice isn't harmful, then you should probably wait for scientific consensus. Also, if the new practice isn't harmful, but you're not confident that it leads to a benefit, you should probably hold out for a consensus as well. Perhaps, based on the new information, you might start tracking data and outcomes of your clients or patients to see if the findings might be relevant to your practice."

— Christin L. Seher, MS, RD, LD, is founder of Strategic Health Solutions, LLC, serving northeastern Ohio.

References

1. Mursu J, Robien K, Harnack LJ, Park K, Jacobs DR. Dietary supplements and mortality rate in older women. ***Arch Intern Med***. 2011;171(18):1625-1633.

2. Bailey RL, Fulgoni VL, Keast DR, Dwyer JT. Dietary supplement use is associated with higher intakes of minerals from food sources. ***Am J Clin Nutr***. 2011;94(5):1376-1381.

3. University of Minnesota. Prevention and etiology research program. Iowa Women's Health Study. http://www.cancer.umn.edu/research/programs/peiowa.html. Accessed November 22, 2011.