Why Dietary Cholesterol Is No Longer Enemy Number One

Boris Hansel, MD | March 19, 2015

Today I would like to talk about a small revolution that's brewing in the dietary recommendations for the American population. An expert panel has released its new recommendations to the US Departments of Health and Human Services and Agriculture, which will draft the final US dietary guidelines later this fall.[1] Those guidelines, which are updated every 5 years, will likely no longer set an upper limit for cholesterol intake for people with hypercholesterolemia.

Is saying that dietary cholesterol is not enemy number one for human health really something new? Not at all.

To explain this, I would first like to go over three distinct concepts that need to be kept in mind when discussing cholesterol.

1. The cholesterol molecule is unique to the animal kingdom. In humans, cholesterol is primarily endogenous in origin—that is, manufactured by our bodies. There is also exogenous cholesterol, which comes from fatty foods of animal origin.

2. The second concept is that of intestinal cholesterol, the cholesterol that passes into the intestine. Some of it is reabsorbed and some is eliminated in the feces. In intestinal cholesterol, a distinction should therefore be made between the cholesterol manufactured in the body and excreted in bile, and dietary cholesterol, which comes from the food we eat.

3. The third concept is that of the lipoproteins that transport cholesterol. We simplistically talk about bad cholesterol, or low-density lipoprotein (LDL) cholesterol, because these lipoproteins are atherogenic, and conversely about good cholesterol, or high-density lipoprotein (HDL) cholesterol, because these lipoproteins protect against atherosclerosis.

Most of the debates over cholesterol arise from the confusion between these different concepts.

Let's get back to the news—that is, to the change in the dietary recommendations concerning cholesterol. I ask the following question: What is the impact of dietary cholesterol on cardiovascular (CV) risk?

This question can be answered in two ways:

- First, by examining the effect of a high-cholesterol diet on the level of one of the main CV risk factors: LDL cholesterol. The impact of dietary cholesterol on LDL levels is variable. It depends on both the individual and his or her underlying diet. While it may have an impact, we know that the most important thing for reducing plasma LDL levels is to reduce saturated fat intake in favor of unsaturated fats. In this context, reducing dietary cholesterol is not useless, but neither is it the most important thing.

- And second, by examining the relationship between the consumption of the food with the highest cholesterol content, eggs, and the risk for coronary events or stroke. For this, we only have observational studies, but overall, eggs do not promote the occurrence of CV disease. Be careful, though, because according to some of the meta-analyses of these observational studies, dietary cholesterol could have a harmful effect, specifically in people with type 2 diabetes, although the reason for this is not really known.

Moreover, I would like to look at findings from two studies published in late 2014 concerning intestinal cholesterol.

One was a genetic study that found that the CV risk was higher in people who absorbed intestinal cholesterol especially well because of a specific form of the intestinal cholesterol transporter.[2]

The other was the IMPROVE-IT study, which showed that the risk for CV events was reduced by inhibiting cholesterol absorption in the intestine with ezetimibe (Zetia®).[3]

It is important to understand that these two studies mainly concerned the absorption of endogenous cholesterol. Consequently, one cannot draw any conclusions about dietary cholesterol, which accounts for only a small portion of intestinal cholesterol.

In practice, these new recommendations are perfectly in line with current scientific knowledge. They relativize the impact of dietary cholesterol on CV risk and will probably bring eggs back into favor, which, as has long been known, can be safely included in a balanced diet (with one possible exception, however, for diabetics).

Editor's Note: This commentary is an edited transcript of a video presentation published on Medscape France on February 24, 2015.

References

1. 2015 Dietary Guidelines Advisory Committee. Advisory report to the Secretary of Health and Human Services and Secretary of Agriculture. Published February 2015. http://www.health.gov/dietaryguidelines/2015-scientific-report/PDFs/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf Accessed March 12, 2015.

2. Myocardial Infarction Genetics Consortium Investigators, Stitziel NO, Won HH, et al. Inactivating mutations in NPC1L1 and protection from coronary heart disease. N Engl J Med. 2014;371:2072-2082. Abstract

3. Cannon CP. IMPROVE-IT Trial: A comparison of ezetimibe/simvastatin versus simvastatin monotherapy on cardiovascular outcomes after acute coronary syndromes. Program and abstracts of the American Heart Association 2014 Scientific Sessions; November 15-19, 2014; Chicago, Illinois. http://my.americanheart.org/idc/groups/ahamah-public/@wcm/@sop/@scon/documents/downloadable/ucm_469598.pdf Accessed March 12, 2015.

Cite this article: Boris Hansel. Why Dietary Cholesterol Is No Longer Enemy Number One. *Medscape*. Mar 19, 2015.