- Digestion

How red meat is digested may help explain heart risks

The Korea Times · 8 Aug 2022 · 11

New research suggests chemicals produced in the digestive tract by gut microbes may help explain the higher risk of cardiovascular disease from a diet of steak and hamburgers.

This flies in the face of most scientific studies on the harmful effects of red meat on heart health, which have focused on dietary saturated fat and blood cholesterol levels.

The study was published Monday in Arteriosclerosis, Thrombosis, and Vascular Biology, the American Heart Association's peer-reviewed journal.

Heart disease is the leading cause of death in the United States. Nationwide, nearly 700,000 people died from it in 2020, accounting for 1 in every 5 deaths, the Centers for Disease Control and Prevention says.

The risk of developing cardiovascular disease, including heart attack and stroke, increases with age. But experts say heart health may be improved by lifestyle factors such as regular exercise, good sleep, healthy body weight — and eating healthy foods.

Meng Wang, the study's co-lead author, told UPI in an email that the new evidence reinforces longstanding American Heart Association recommendations that Americans should limit their intake of red meat and processed meat to reduce heart disease risk.

According to Wang, a postdoctoral fellow at Tufts University's Friedman School of Nutrition Science and Policy in Boston, the new research "helps us better understand why meat intake [is] associated with a higher cardiovascular risk."

Previous research has found that certain metabolites — chemical byproducts of food digestion — are associated with a greater risk of cardiovascular disease, a news release said.

One such metabolite is TMAO, or trimethylamine N-oxide, which is produced by gut bacteria to digest red meat and contains high amounts of the chemical L-carnitine .

However, the extent to which TMAO and related metabolites derived from L-carnitine may contribute to cardiovascular risk associated with red meat consumption is unclear.

So, the researchers measured levels of the metabolites in blood samples, and also examined whether blood sugar, inflammation, blood pressure and blood cholesterol may account for elevated cardiovascular risk associated with red meat consumption.

According to Wang, "The novel set of metabolites generated by our gut microbes, as well as pathways related to blood sugar and general inflammation, appeared to explain much of this elevated risk — more so than blood cholesterol or blood pressure."

These findings suggest that when making dietary recommendations, "it may be less important to focus on saturated fat or cholesterol content in red meat," Wang said. "Other components like L-carnitine and heme iron in red meat may play a more important role and need to be better studied."

Wang said in a press release that, based on the study's findings, "novel interventions may be helpful to target the interactions between red meat and the gut microbiome to help us find ways to reduce cardiovascular

risk."

One example of "novel interventions," she explained to UPI, is "medications to inhibit the generation of TMAO-related metabolites. It could potentially be used in people with high TMAO levels."

Could this result in a person taking a pill along with their steak in the future?

Said Wang, "Theoretically what you described is possible. However, I would say that following healthy eating behaviors is still an important first step to reduce cardiovascular risk, since it is safer and likely also more cost-effective compared to medications and can be applied to everyone."

She added: "Medications are usually used when lifestyle modifications alone cannot successfully manage the risk."

Study participants included nearly 4,000 of 5,888 adults initially recruited more than three decades ago for the Cardiovascular Health Study: federally funded research looking at risk factors for cardiovascular disease in adults aged 65 or older.

Participants' average age was 73, nearly two-thirds were female, and 88 percent self-identified as white.

Over the course of the study, participants provided blood samples and answered questionnaires about their dietary habits.

For the new study, the researchers compared the risk of cardiovascular disease among participants who ate different amounts of animal source foods, including red meat, processed meat, fish, chicken and eggs.

They found that eating more meat, especially red meat and processed meat, was linked to a higher risk of atherosclerotic cardiovascular disease: a 22% higher risk for about every 1.1 servings per day, the release said.

The scientists said the increase in TMAO and related metabolites found in the blood explained roughly one-tenth of this elevated risk.

They also noted that blood sugar and inflammation appear to be more important in linking red meat intake and cardiovascular disease than pathways related to blood cholesterol or blood pressure.

And the researchers concluded that eating fish, poultry and eggs was not significantly linked to higher risk of cardiovascular disease.

Wang noted the significance of having older adults participate in the study, though the findings may not apply to populations that are younger or more racially diverse.

She said "there haven't been many studies of animal source food intake and cardiovascular disease specifically focusing on this age group. So our study provides an important piece of evidence for older adults."

Christopher Gardner, chair of the American Heart Association's Nutrition Committee, told UPI in an email these findings "won't change anything for the vegan or vegetarian, other than further reinforcing their convictions and practices."

Gardner, professor of medicine at Stanford University and director of nutrition studies at the Stanford Prevention Research Center, said he will assume "the committed carnivore will brush this off as sounding too complex to move them to make a change."

However, the nutrition scientist said he thinks the target audience for this new finding is "the many people" who are considering eating less red meat.

"Maybe this is the added finding that convinces the on-the-fence flexitarian that despite some of the misinformation campaigns and social media confusion created around saturated fat, cholesterol, and fiber ... there is yet another scientifically plausible explanation for harm to health from red meat, published in a peer-reviewed, high-impact medical journal," Gardner said.