Intestinal microbiota produced Trimethylamine-N-oxide can increase the risk of cardiovascular disease

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Madam, the involvement of intestinal microbiota has been suggested previously in few metabolic diseases such as obesity.[1] However only recently it was suggested that intestinal microbiota can initiate atherosclerosis.[2] Intestinal microbial metabolism of dietary lecithin produces a compound known as Trimethylamine-N-oxide (TMAO) which is believed to cause formation of atherosclerotic plaques through interactions with various cells such as macrophages and plasma cells. A recent cohort study has concluded that higher the levels of TMAO the greater the risk for cardiovascular disease.[3] The researchers also suggested that TMAO levels can predict heart risk better than other factors such as high blood pressure and hyperlipidaemia.[3]

It is clear from this study that role of body's bacteria is vital in health and disease. For a long time, researchers have focused on the role of diet and heart disease but this finding adds a new dimension that heart disease may involve microbes in our gut. Dr Hazen, the lead researcher also demonstrated that people who ate 2 hard boiled eggs had higher levels of TMAO in their blood compared with the controls.[3] However oral broad spectrum antibiotics were shown to reduce plasma levels of TMAO.

Increased levels of TMAO were also associated with a higher risk of stroke among a cohort of 4007 patients who had undergone elective coronary angiography.[3] Given this very important association, TMAO levels will definitely be a target for therapies in the coming time. This vital finding also signifies the importance of reducing lecithin and choline containing food especially among people who are at risk for cardiovascular disease. Furthermore probiotics might be a solution as it may help grow bacteria that do not cause rising of TMAO levels.[4] Moreover, great amount of work needs to be done in identifying the specific intestinal bacteria responsible for elevated TMAO levels so an effective therapeutic drug could be designed to target it.

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