

## Less of a stink in diabetes patients?

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Hydrogen sulfide  $(H_2S)$  is commonly associated with smell of rotten eggs, stink bombs and blocked drains but lower blood levels of the gas are possibly linked to cardiovascular complications in some male patients with type II diabetes, according to research recently presented by researchers at the Peninsula Medical School in the South West of England at the Annual Diabetes UK Professional Conference in Glasgow this week and published in *Diabetic Medicine*.

H<sub>2</sub>S is produced naturally within our bodies, along with other chemical compounds such as nitric oxide, where it is believed to help regulate <u>blood pressure</u>. Research shows that a balance between these compounds relates to good health, whereas an imbalance could indicate disease. In the case of <u>diabetes</u>, common complications of the disease are <u>high</u> <u>blood pressure</u> and microvascular dysfunction, which leads to damage of the tiny blood vessels (microvessels) that deliver blood, oxygen and nutrients to the eyes, skin, nerves and kidney.

Dr. Matt Whiteman of the Peninsula Medical School and colleagues from the Peninsula National Institute for Health Research (NIHR) Clinical Research Facility have compared the levels of  $H_2S$  in blood samples taken from healthy people and male patients with type II diabetes and found markedly decreased levels of  $H_2S$  in the diabetes patients. Lower  $H_2S$  levels were associated with clinical markers of impaired microvessel function suggesting that a loss of this blood pressure lowering gas could be a contributing factor in the development of vascular complications in patients with diabetes.



Previous work on  $H_2S$  has almost exclusively been carried out on animals in the laboratory however work carried out at PMS in the recently opened Peninsula NIHR Clinical Research Facility has been the first to investigate the role of  $H_2S$  in any disease in humans. Dr. Whiteman commented: "Our previous work in the test tube has shown the potential for  $H_2S$  to mediate blood pressure regulation. However, this is the first study examining  $H_2S$  levels in a human disease with relevant clinical indices of vascular health."

He added: "It would appear that in this study, male patients with diabetes have lower levels of  $H_2S$  in their blood compared to otherwise healthy males of the same age. Lower levels of  $H_2S$  could effect how blood vessels dilate. Although these are early days in a new field of research, manipulation of  $H_2S$  levels by novel or existing pharmacological or even dietary means in the future could help treat or prevent cardiovascular complications caused by diabetes and other related conditions."

Source: The Peninsula College of Medicine and Dentistry

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