Levels of sex hormone binding protein could predict risk of developing insulin resistance

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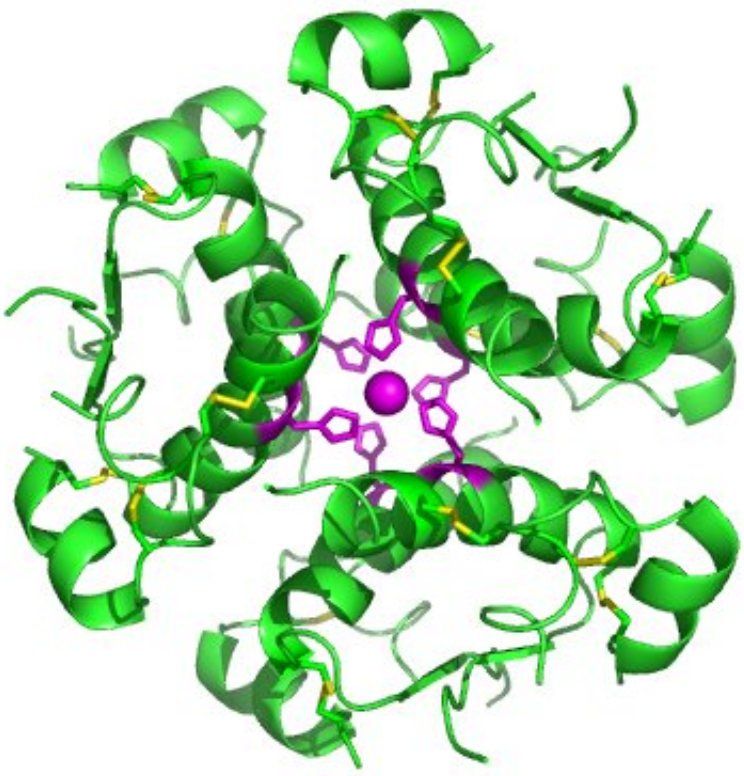

High-resolution model of six insulin molecules assembled in a hexamer. Credit: Isaac Yonemoto/Wikipedia

New research presented at this year's annual meeting of the European Association for the Study of Diabetes (EASD) reveals that concentrations of sex hormone binding globulin (SHBG) protein in the

blood can be used to predict the development of insulin resistance, which can develop into type 2 diabetes (T2D).

The research conducted by Kristin Ottarsdottir and colleagues from the Department of Public Health and Community Medicine, and the Department of Internal Medicine and Clinical Nutrition at the University of Gothenburg, Sweden, investigated the association between SHBG levels and insulin resistance in men, as well as pre and post-menopausal women.

Previous studies have shown that low levels of the protein SHBG in the blood are associated with an elevated risk of developing T2DM in both men and women. Although insulin resistance is known to frequently be a precursor to developing T2DM, there is a lack of studies which have looked into the link between SHBG and insulin resistance, in both men and women.

In this research, a sample of 2816 subjects were randomly selected from the Swedish population between 2002 and 2005 as part of a cohort study into the risk factors for developing early onset cardiovascular disease. Follow up occurred between 2012 and 2014 giving a mean follow-up time of around 10 years, with fasting blood samples being taken at the start and end of the investigation. Data were available from a representative sample of 1327 individuals who completed the study, and their samples were analysed to determine SHBG levels and determine insulin resistance.

The team found that the baseline results from the beginning of the study showed a significant inverse association between SHBG concentration and insulin resistance. This meant that lower levels of SHBG were linked to higher insulin resistance, and this was observed in men, premenopausal and postmenopausal women. The analysis took account of age, lifestyle, blood pressure, diabetes status, and waist to hip ratio,

and found that SHBG and insulin resistance at the time of the follow-up had a similar relationship.

The authors also discovered that the concentration of SHBG at baseline could also be used to predict the presence of insulin resistance at the time of the follow-up years later, which held true regardless of the sex of the subject, or their menopausal state if female. The authors suggest that: 'This might explain the previously shown association between SHBG level and type 2 diabetes."

They add: "If confirmed these results suggest a new pathway on the development of insulin resistance and thus a possible field for the development of more effective therapies against insulin resistance."

Provided by Diabetologia

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