BEYOND BLOOD SUGAR

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Beyond Blood Sugar: The Expanding Role of SGLT-2 Inhibitors and Therapeutic Carbohydrate Reduction for treating heart failure.

"Pharmac proposes widening access to medicine used in the treatment of chronic heart failure" (RNZ August 2024)
https://www.rnz.co.nz/news/national/525677/pharmac-proposes-widening-access-to-medicine-used-in-the-treatment-of-chronic-heart-failure
Love them or hate them, sodium-glucose type 2 transport inhibitor (SGLT-2i) medications, such as empagliflozin, are now a mainstay of managing type 2 diabetes (T2D). They are the preferred second-line pharmacotherapy (following metformin) in people with concomitant renal disease, and cardiovascular disease; especially heart failure (1). Pharmac is now proposing to widen the subsidy criteria on empagliflozin to include heart failure – independent to glycaemic control.

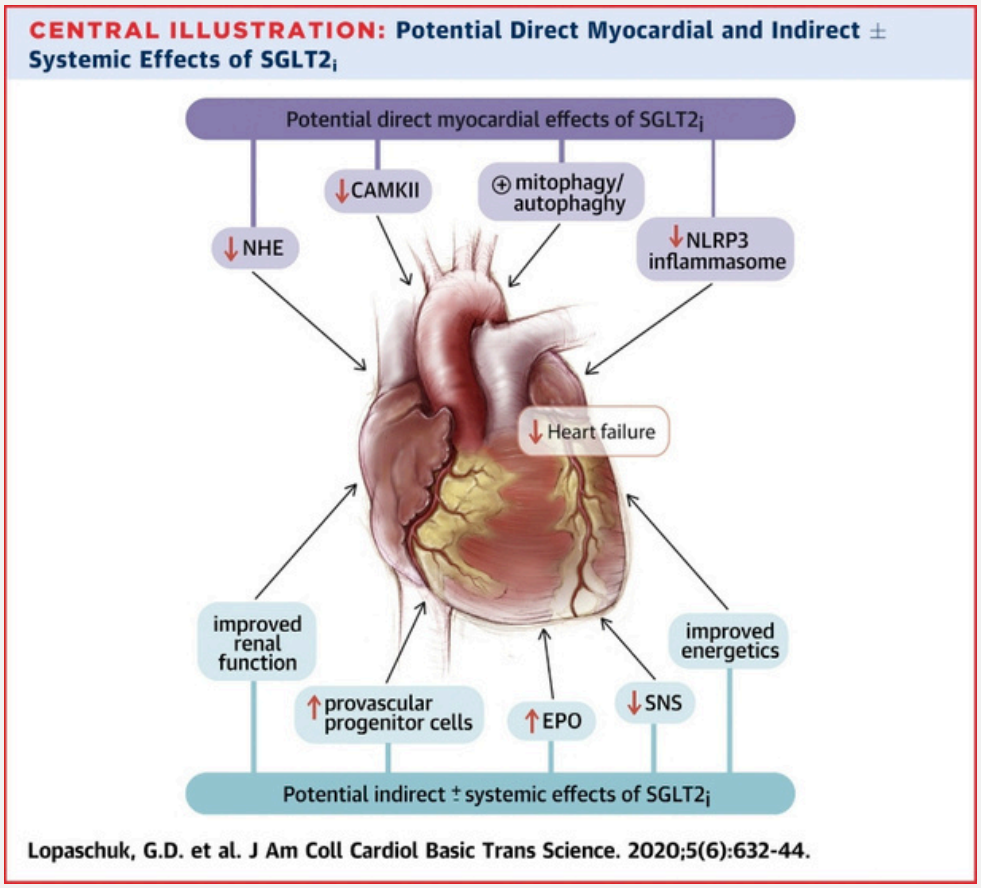
Multiple studies including DAPA-HF and EMPERPOR showed that SGLT-2i reduced hospitalisations for heart failure – independent of their diabetes status – and may also slow the progression of the disease. Furthermore renal function declined slower in groups treated with SGLT-2i, compared to placebo (2, 3).

There are multiple theories why SGLT-2i have significant benefits to health, especially cardiovascular health, but interestingly – none so far mention their role in lowering insulin levels!

In their "state of the art" review, Lopaschuk and Verma (3) summarise the beneficial mechanisms of SGLT2i on heart failure, including increased nutrient provision through beta-hydroxybutyrate, weight-loss (via loss of glucose calories only), reduced renal stress, which lowers sympathetic nervous system demands, and reduced inflammation. For many of these processes, they correlate the outcomes with the medication but keep implying "mechanism not fully understood".

Although heart failure can have a variety of aetiologias, hyperinsulinemia underpins the common mechanisms of atherosclerosis, vasoconstriction, increased blood clots, and inflammation (4). Furthermore, significant stress, hypertension, chronic kidney disease, diabetes mellitus, and/or inflammation further increases both the risk and the severity of heart failure (5-7) – again all processes that can either be caused by or aggravated by hyperinsulinemia.

Given SGLT-2i lower insulin demands in the body, the effects of the SGLT2i for improving heart failure are completely predictable when you take the lower insulin levels into account. This suggests that we should be able to achieve the same benefits of SGLT-2i with therapeutic carbohydrate reduction. Preliminary work in this field was conducted by Sabine Kleissl-Muir as part of her PhD research(8) (co-supervised by none other than our own Caryn Zinn).



Bottom Line

It goes without saying that you can improve heart-failure related outcomes with whole food, nutritionally dense therapeutic carbohydrate reduction and other good lifestyle measures. However, we also know that this can be challenging for some people to manage. Until lifestyle measures are universally implemented, SGLT-2i are a small step in the right direction for managing heart failure whether or not you have hyperglycemia.

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