

# Extraglycemic effects of sodium glucose cotransporter 2 inhibitors with a systemic approach, from possibilities to certainty

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## Abstract

Sodium-glucose cotransporter inhibitors (SGLT2 inhibitors) are novel drugs in the treatment of type 2 diabetes mellitus that prevent the absorption of glucose in the proximal tubules of the kidney and lower the blood glucose level. In addition to treating diabetes type 2, it influences all human systems. The aim of this study is to evaluate the effects of this drug (either beneficial or adverse) on all human systems, and based on that, a general opinion regarding the preference and safety of using this drug in diabetic patients with comorbidities. So far, no study has been conducted to evaluate the effects of this drug on all human systems. Its beneficial effects on improving cardiovascular disease risk factors and reducing adverse events caused by cardiovascular and renal diseases have proven in most large clinical studies that these effects are almost certain. It also has beneficial effects on other human systems such as the respiratory system, the gastrointestinal system, the circulatory system, and the nervous system; more of them are at the level of clinical and pre-clinical trials but have not been proven in large clinical trials or meta-analyses, so the term possible is used. In this review, the beneficial effects of this drug and its mechanism on every system of humans have been studied, and finally, its adverse effects have also been discussed. The key impact of this study is to attract the attention of large clinical studies based on an overview of all possible effects for the determination of certainty.

## Manuscript type: review

### **Extraglycemic effects of sodium glucose cotransporter 2 inhibitors with a systemic approach, from possibilities to certainty**

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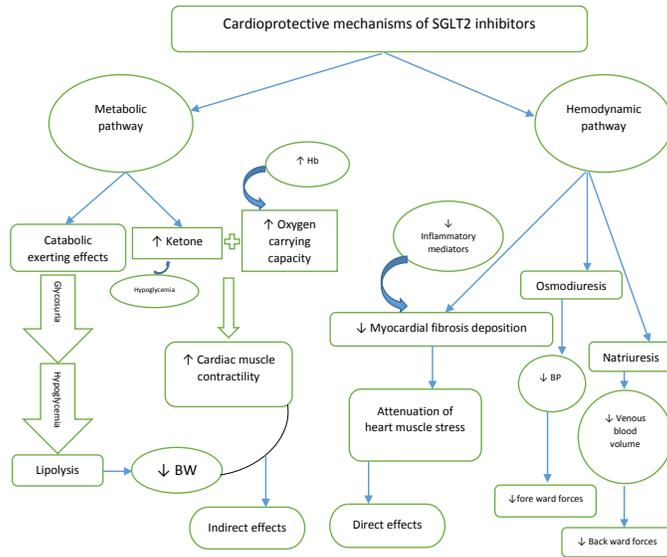
## Abstract

## Acknowledgement

## Financial Disclosure:

## Conflict of Interest:

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**Figure 1** shows the two principle pathways through which these SGLT2 inhibitors exert cardioprotective effects, or, in other word, inhibit diabetic cardiomyopathy.

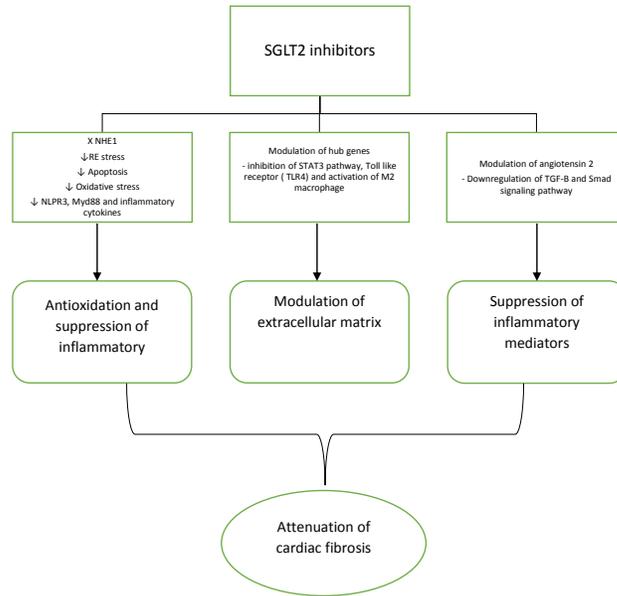


Figure 2 shows the basic mechanisms by which these SGLT2 inhibitors attenuate cardiac fibrosis.

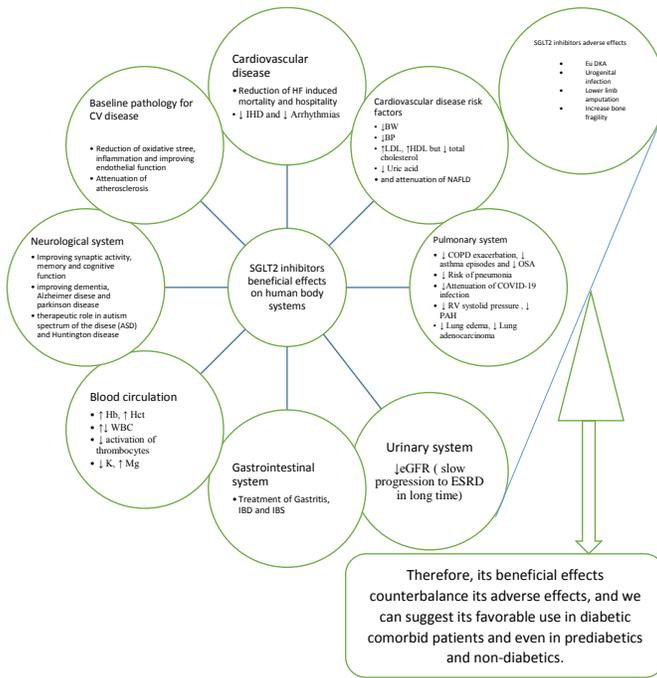


Figure 3 shows the final result (conclusion).