

中文題目：Sodium glucose cotransporter-2 抑制劑在糖尿病病人身上能改善左心室的收縮及舒張功能並改善心室重塑的病程

英文題目：Sodium glucose cotransporter-2 *inhibitor* was associated with an improvement of left ventricular systolic and diastolic function as well as reverse remodeling of cardiac chamber size in patients with type 2 diabetes mellitus

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Background: Recent studies indicated that sodium glucose cotransporter-2 inhibitors (SGLT2i) reduced heart failure hospitalization in patients with type 2 diabetes mellitus (T2DM). However, whether SGLT2i can improve left ventricular (LV) systolic and diastolic function remained unclear.

Method: This cohort study used medical data from a multicenter healthcare provider in Taiwan, which enrolled consecutive patients taking DPP4i (n=212), DPP4i+SGLT2i (n=627), and SGLT2i (n=683) with a paired baseline and post-treatment echocardiography available between June 1, 2016 and May 31, 2018. Echocardiographic parameters including LV ejection fraction (LVEF), left atrial dimension (LAD), LV end-diastolic dimension (LVEDD) and end-systolic dimension (LVESD), transmitral E and A wave, deceleration time (DecT), and e' velocity were analyzed at baseline and after treatment.

Results: After a median-treatment period of 245 days, SGLT2i group was associated with an improvement of LVEF from $58.8\% \pm 16.6\%$ to $60.9 \pm 15.3\%$ ($P=0.014$), DecT from 200.4 ± 66.4 to 217.7 ± 78.1 ms ($P=0.013$), and decrease of mitral E/e' ratio from 13.2 ± 5.9 to 11.8 ± 5.0 ($P=0.025$). There were no significant changes of echocardiographic parameter for the DPP4i or DPP4i+SGLT2i group after treatment. For patients with a reduced baseline LVEF of $<50\%$ or ischemic etiology, SGLT2i was associated with an improvement of LVEF, LV diastolic function including E/A ratio, DecT, and mitral E/e' ratio, and a significant reverse remodeling of decreased LV chamber size after treatment. For those patients with non-ischemic etiology or preserved LVEF of $\geq 50\%$, SGLT2i treatment didn't showed an improvement of LV systolic or diastolic function after treatment.

Conclusions: SGLT2i, in contrast to DPP4i, was associated with an improvement of LV systolic and diastolic function in T2DM patients. The advantage of SGLT2i treatment in improving cardiac function was contributed from patient subgroup with a reduced LVEF or ischemic etiology.