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ポスター報告 **Abstract** Yuaka Harano MD, PhD

Combined use of oral standard cookie meal(OSC) and the newly revised insulin suppression test for the evaluation of whole body(WB), muscle and hepatic glucose clearance(GC) under endogenous or exogenous insulin and its clinical usefulness

Adequate insulin action(sensitivity: IS) in muscle, liver and WB is the most important metabolic factor in diabetes, especially in S-GLUT-2 user.

Oral intake of hypoglycemic agents followed by the standard 75g starch including 15% maltose (OSC, Saraya Co.), which is digested and absorbed into blood glucose at a constant rate for 2 hours, minus urinary glucose loss, divided by the steady state PG at 2h equals the GC in WB under the endogenous insulin secretion. In SGLUT-2 user(HbA1c, 6.8%, BMI, 25.3), this was significantly low(4.2±0.5,SE ml/kg/min, n = 6 vs normal, 8.7,n=10). Average of 1& 2h insulin was low,10.5 vs normal,30 μU/ml. They are recommended to keep BMI below 23, upper normal range of IS, and use GLP-1 analog or insulin to compensate insufficient IS. This approximation is further evaluated using the revised half dose of glucose and insulin infusion, 3mg, 0.39mU/kg/min, with octreotide 50 μg SC for muscle, 100 μg for whole body, 30min before the test. Under this exogenous insulin(19.1 μU/ml, at 2-4h), 2h GC is confirmed significantly low(2.3±0.1,n=6 vs control, 3.7±1.0, n=10) reflecting impaired muscle GC in SGLUT-2 user. Additional intake of OSC under continued subcutaneous insulin(1.5 rate over iv), gives the 2h decreased GC(5.84, vs normal, 9.5,) of WB, and the difference corresponding to hepatic GC, which was significantly low. Better GC was obtained for non-SGLUT groups on oral agents with or without insulin secretagogues.

Conclusion

Combined use of OSC and simplified IS test enables to evaluate muscle, hepatic and WB glucose utilization under endogenous or exogenous insulin. The method is useful to detect and clarify the various mechanisms of insulin resistance in diabetes, metabolic syndrome, heart failure, Alzheimer disease or fatty liver etc.

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