

GS5-2 *Morinda citrifolia* fruit juice suppresses the exacerbation of cerebral ischemia-induced neuronal damage through regulation of blood glucose levels after ischemic stress.

○Shinichi HARADA¹, Wakako HAMABE¹, Kohei KAMIYA¹, Toshiko SATAKE¹, Shogo TOKUYAMA¹

¹Fac. Pharmaceu. Sci., Kobe Gakuin Univ.

We have revealed that intake of *Morinda citrifolia* fruits juice (ONJ), a well-known healthy drink, for 7 days significantly suppressed development of neuronal damage after middle cerebral artery occlusion (MCAO) in mice, while detailed mechanism remains unknown. In regard to the mechanisms of neuronal damage after MCAO, we have recently focused on the ischemia-induced elevated blood glucose (BG), and found insulin could suppress the neuronal damage by normalizing BG after MCAO. Here, we demonstrated the involvement of BG regulation in protective effect of ONJ. On 1 day after MCAO, fasting BG was significantly elevated, suggesting that glucose intolerance was induced by MCAO. This was also confirmed by glucose tolerance test. Furthermore, it was shown that plasma insulin levels significantly increased, while plasma adiponectin levels significantly decreased. Interestingly, the glucose intolerance developed on 1 day after MCAO was completely disappeared in ONJ-treated group. Noteworthy, ONJ treatment significantly increased the plasma insulin levels much further on 1 day after MCAO, while plasma adiponectin levels were still decreased. These results suggest that it is possible that ONJ could facilitate the insulin secretion after ischemic stress and attenuate the development of glucose intolerance in the production of the protective effect against ischemic stress.