

Protective effect of *Morinda citrifolia* on ischemic neuronal damage

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In the viewpoint of “brain protection” from ischemic stress, we have tried to find out the protective effect of *Morinda citrifolia* fruits juice (ONJ) using transient focal ischemic model mice. We found that intake of 10% ONJ for 7 days before ischemic stress significantly reduced the neuronal damage, while detailed mechanism remains unknown. Recently, it is reported that the ischemic neuronal damage will be exacerbated by hyperglycemic or diabetic condition. Interestingly, we have found that glucose intolerance was developed on 1st day after ischemic stress, while it completely disappeared on 3rd day after ischemic stress. Noteworthy, the cerebral infarction was gradually developed during 1st to 5th day after ischemic stress, suggesting that glucose intolerance in the early phase of ischemic stress might adversely affect development of neuronal damage. In this study, we focused on the effect of ONJ on the development of glucose intolerance after ischemic stress.

Intake of 10% ONJ for 7 days before ischemic stress significantly inhibited the development of cerebral infarction on 3rd day after ischemic stress, while 3% ONJ did not show such significant protective effect. Interestingly, the development of glucose intolerance on 1st day after ischemic stress was significantly inhibited by 10% ONJ but not by 3% ONJ. These results suggest that the protective effect of ONJ on the neuronal damage after focal ischemia may be mediated by inhibiting the development of ischemic stress-induced glucose intolerance.