

11th International Conference and Exhibition on

Pharmacology and Ethnopharmacology & International Conference on **Pharmaceutical Oncology**

July 18-19, 2018 | Atlanta, USA

Baicalin administration has a protective effect on Hyperglycemia-induced malformation of cardiovascular system

Jian-xin Liang, Lin-rui Gao, Li-guo Chen, Guang Wang and Xue-song Yang
Jinan University, China

Aims: Baicalin is a traditional Chinese medicine for tocolysis. Whether it can protect early embryonic cardiovascular development caused by gestational diabetes is obscure, and the mechanism remains unclear. In this research, early chicken embryo was used as a model to explore the molecular mechanism of baicalin in reducing the early cardiovascular developmental deformity caused by high glucose environment.

Methods: We found that 6 μ M baicalin administration can attenuate the death rate and retardation of chicken embryos caused by high glucose environment significantly. Thus, we observed the chick embryos in HH7, HH8, HH10, HH11 stages, which are treated with simple saline, high glucose (50 mM) and/or Baicalin (6 μ M). In this study, we used immunofluorescence, situ hybridization, RT-PCR, Western blot, qPCR and others to observe the expression of the key transcription factors, and the changes of autophagy-related genes, apoptosis-related genes, ROS in the development of cardiovascular so that to study whether or not Baicalin could attenuate hyperglycemia-induced malformation of cardiovascular system and the mechanism. At the same time, we studied the mechanism involving ROS, autophagy and apoptosis, combined with HUVEC cell. In addition, we also used Baicalin to treat the mice in diabetes model induced by Streptozotocin (STZ) and observed whether or not this has the protective impact on the blood glucose and other organs of diabetes mellitus mice.

Results: Hyperglycemia-enhanced cell apoptosis was reduced in embryos and HUVECs in the presence of Baicalin. Hyperglycemia-induced excessive ROS production was inhibited when Baicalin was administered. Analyses of classical antioxidant enzymes, MQAE and GABAA suggested Baicalin plays an antioxidant role in chick embryos possibly through suppression of outwardly rectifying Cl⁻ in the high-glucose microenvironment. What's more, hyperglycemia-enhanced autophagy fell in the treatment of Baicalin, through affecting the ubiquitin of p62 and accelerating autophagy flux. Both Baicalin and Vitamin C could reduce apoptosis, but CQ did not, suggesting autophagy to be a protective function on the cell survival. In mice, Baicalin decreased the elevated blood glucose level caused by STZ.

Conclusions: In brief, these data suggest that hyperglycemia-induced embryonic cardiovascular malformation can be attenuated by Baicalin administration through suppressing the excessive production of ROS and autophagy. Baicalin could be a potential candidate drug for women suffering from gestational diabetes mellitus.

Biography

Jian-Xin Liang has completed his undergraduate course from the Hubei University of Chinese Medicine. Now she is completing her master study in Jinan University School of Medicine. She has published 2 papers, including "Atg7-mediated autophagy is involved in the neural crest cell generation in chick embryo" Molecular Neurobiology, and "BRE modulates granulosa cell death to affect ovarian follicle development and atresia in the mouse." Nearly for 2 years, she has been doing research about the impact of baicalin on the heart and vascular development of embryos, which are in the PGDM (previous gestational mellitus) environment.

545054487@qq.com

Notes: