Author's response to reviews

Title: DanQi Pill protects against heart failure through the arachidonic acid metabolism pathway by attenuating different cyclooxygenases and leukotrienes

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Author's response to reviews: see over
Dear Editor:

Enclosed please find our manuscript entitled “DanQi Pill protects against heart failure via Arachidonic acid metabolism pathway by balancing different COXs pattern” that I am respectfully submitting for publication in BMC Complementary and Alternative Medicine.

We believe that the results of this manuscript will make it interesting to general readers of BMC Complementary and Alternative Medicine. The Chinese herbal formula is composed of diverse, complex components, whose comprehensive pharmacological effects are accumulated by many active monomers through multi-channels and multi-targets. How to get the Chinese herbal formula’s pharmacological targets and further understand the underlying molecular mechanism is still under investigating. In this paper, we not only present a case study of DanQi Pill (DQP) to research the underlying molecular mechanism of Traditional Chinese Medicine (TCM) by the drug-target prediction and following experimental validation, but also a new interesting therapeutic effect pattern of DQP are found. First, after determining the compositive compounds of DQP, we used DrugCIPHER-CS method to predict their potential drug-targets. These potential targets were significantly enriched with some known cardiovascular disease-related drug-targets. Interestingly, a new pathway- Arachidonic acid (AA) metabolism was also involved. Then the animal model of heart failure (HF) was applied to validate the predicted pathways. Arachidonic acid metabolism pathway was validated as new potential targets pathway. Results show that DQP had effect both on TXB2 and PGI2 in different patterns. It can down-regulate the TXB2 and up-regulate the PGI2 in diverse way. Remarkably, it also can balance the cyclooxygenase (COX)-1 and COX2 by suppressing their levels, which may be the critical and novel mechanism of cardiacprotective efficacy for DQP. Furthermore, leukotrienes B4 (LTB4) receptor, another key molecule of AA metabolism which finally mediated gastrotoxic leukotrienes, was also reduced by DQP. Collectively, our results suggest that DQP may have multi-targets therapeutic potential in the treatment of CHD by attenuating the activation indicating by the targets prediction results by drug-cipher, thus to restore the imbalance between COX1 and COX2, PGE2 and LTB4,PGI2 and TXA2, eventually provide the synthetic cardiac protective efficacy and less side effect to HF.
We deeply appreciate your consideration of our manuscript, and we look forward to receiving comments from the reviewers.

Sincerely yours,

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