Effects of Glycyrrhetic Acid & Other Chemical Components of Shakuyakunanzoto on Cutaneous Microcirculation in Humans

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Abstract

Purpose: The purpose of this study was to explore dose dependent vasodilation responses of the individual compounds of Shakuyakunanzoto (SKT), a 1:1 combination of extracts from Paeony and Licorice roots, containing glycyrrhetic acid (GA), paeoniflorin (PF), and isoliquiritigenin (ISO). Methods: Twenty young, healthy participants (13M/7W) had four intradermal microdialysis fibers placed in the forearm skin for local delivery of: 1) control ( saline), 2) GA, 3) PF, or 4) ISO at doses of 10, 50, or 100 µm. Mean CVC did not statistically differ between baseline and the compounds for control and the compounds for ISO (CVC0 vs. CVC50, CVC0 vs. CVC100). There were no significant differences between the doses 1, 10, or 50 µm for any variables. There were no significant differences between the doses 1, 10, or 50 µm for any variables. Conclusion: These results suggest that the doses may be lower or below the threshold to cause a vasodilatory effect. Future studies that investigate higher doses of these compounds may be needed.

Background

- Shakuyakunanzoto (SKT) is an herbal preparation of the Paeony and Licorice roots, containing glycyrrhetic acid (GA), paeoniflorin (PF), and isoliquiritigenin (ISO).
- SKT has been used for over 2,000 years as a dietary supplement in oriental medical practices. It has been used to treat muscle cramps in hemodialysis patients and duodenal spasms in peritoneal patients. 1, 2
- One potential mechanisms could involve the vasodilatation of either one or all of the individual compounds of SKT.
- However, it is currently unknown if any of the components of SKT namely GA, PF and ISO have vasodilatory potential.

Results

Table 1. Participant characteristics for all groups showed similar physical and hemodynamic variables (p>0.05). Values are mean ± SD.

Discussion

- Mean CVC did not statistically differ between baseline and individual compound plateau at any dose.
- There were no significant differences between the control and the compounds for GA, PF, or ISO. Table 2, mean CVC for Control did not differ from any drug infusions at any dose (p>0.05). These results suggest that the doses may be lower or below the threshold to cause a vasodilatory effect. Future studies could include investigating a systematic effect of different compounds vs individual compounds and blocking individual vasodilatory pathways (i.e. NOS inhibition) may be needed.

Conclusions

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References and Acknowledgments

4. Onodera, K., et al. The control and the compounds for GA, PF, and ISO. Peak CVC for Control did not significantly differ from any drug infusions at any dose. (p>0.05 as compared to baseline.)

Figure 1. Timeline of protocol.

Figure 2. Baseline and peak CVC responses to infusions of A) Control, B) GA, C) PAE, and D) ISO. Peak CVC for Control did not significantly differ from any drug infusions at any dose. (p>0.05 as compared to baseline.)

Figure 3. Laser Doppler flowmetry in the forearm skin.

Figure 4. Effect of SKT on CVC.

Figure 5. Effect of SKT on CVCmax.

Figure 6. Effect of SKT on CVCbl.

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