XXVIII BALKAN CLINICAL LABORATORY FEDERATION MEETING AND XIII NATIONAL CONFERENCE OF CLINICAL LABORATORY

8 - 11 SEPTEMBER 2021, SOFIA

The effect of wet cupping therapy on the blood levels of methylarginine derivatives

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PURPOSE / OBJECTIVES

Wet cupping therapy (WCT) is a simple and economical traditional treatment, however its mechanism of action still requires scientific interpretation. WCT is used as a prophylactic and/or complementary in the treatment of diabetes, hypertension and hyperlipidemia, and therefore thought to be beneficial in the prevention and control of cardiovascular diseases. Methylarginine derivatives such as asymmetric dimethylarginine (ADMA), symmetric dimethylarginine (SDMA), L-N-monomethyl arginine (L-NMMA) are an independent risk factor for cardiovascular diseases. The aim of the study is to contribute to the elucidation of the mechanism of action of WCT in cardiovascular diseases by measuring ADMA, SDMA, L-NMMA and arginine levels in wet cupping and venous blood samples taken concurrently from subjects who underwent WCT.

MATERIALS & METHODS

WCT was implemented to 50 volunteer women. Venous blood and wet cupping blood samples were taken concurrently. Venous blood and wet cupping blood samples arginine, ADMA, SDMA, and L-NMMA levels were measured using a validated tandem mass spectrometric method through a pretreatment procedure requiring derivatization with butanol solution including 5% (% v/v) acetyl chloride.

RESULTS

ADMA [0.24 (0.09-0.45) μM vs 0.21 (0.12-0.35) μM, p=0.022] and L-NMMA [0.017 (0.01-0.11) μM vs 0.015 (0.01-0.25) μM, p=0.005] levels were statistically significantly higher in wet cupping samples compared to venous blood, while there was no significant difference between arginine [84.2 (44.2-186.4) μM vs 74.4 (22.0-149.4 μM, p=0.129] and SDMA [0.17 (0.07-0.31) μM vs 0.16 (0.04-0.30) μM, p=0.542] levels. The inter-assay CV% values for all analytes were less than 9.8% of the tandem mass spectrometric method used in the quantitation of analytes. Recovery% values ranged from 94.1% to 108.9% for all analytes, while the matrix effect% ranged from 1.2% to 8.1%.

- **WCT reduces serum ADMA and L-NMMA levels**
- **WCT doesn't cause important changes in serum arginine and SDMA levels.**
- **WCT can reduce oxidative stress and contribute to the prevention of cardiovascular diseases**
- **As a result, WCT may be beneficial in the prevention and treatment of various chronic diseases**

RESULTS

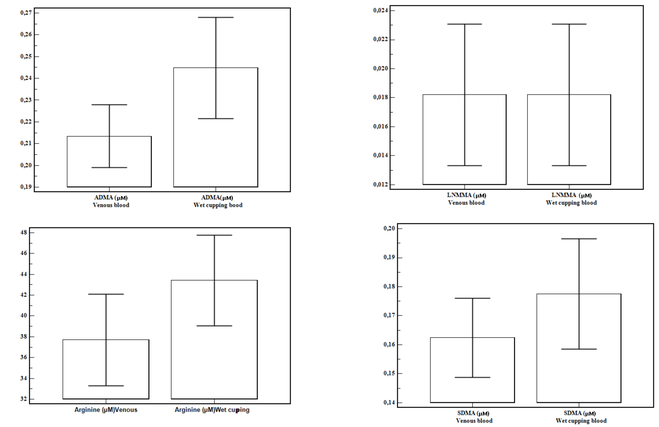

Figure 1. Comparision of methylarginine levels in wet cupping blood and venous blood.

SUMMARY/CONCLUSION

WCT removes methylarginines, therefore the therapeutic effects of wet cupping in cardiovascular diseases may be due to the excretion of methylarginines from the body.