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EFFECTS OF WET CUPPING THERAPY ON BLOOD PARAMETERS AND QUALITY OF LIFE OF OBESE INDIVIDUALS

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Cardiovascular diseases (CVDs) are leading health problems caused by several risk factors, which include obesity. Obesity is defined as abnormal or excessive fat accumulation that may impair health and is the fifth leading risk for global deaths. Wet cupping therapy (WCT) is a recognized Malay traditional medicine that was shown pre-clinically to be effective against CVD parameters. This study was conducted to determine effects of WCT on blood parameters and quality of life (QoL) of obese male individuals at baseline, pre- and post-WCT sessions and to look for differences between venous and cupping bloods samples. Obese male participants aged 22 until 39 years old were recruited with informed consent to receive two WCT sessions. Blood was collected via venipuncture from all participants at baseline, pre- and post-WCT sessions. Wet cupping sessions were conducted on days 28th and 35th. Venous and cupping blood samples were collected and analyzed. Study participants answer questionnaires related to quality of life. There were significant increase in aspartate transaminase ($p < 0.05$) and significant decrease in total protein ($p < 0.001$) between baseline, pre- and post-WCT sessions. Hematological parameters remained unchanged after WCT. Metabolite pathways via log fold change analysis uncovered insignificant regulation between baseline - pre-cupping venous bloods ($p > 0.05$), significant down regulation between pre-cupping - post-cupping ($p < 0.001$), and significant metabolites up regulation in cupping as compared to venous blood ($p \leq 0.001$), including linoleic acid (LA), sphingosine 1-phosphate (S1P) and glycochenodeoxycholate (GCDC). Three cupping points of WCT were found to affect several blood parameters and metabolic pathways associated with CVD. This findings provide evidence that WCT may be utilized as adjuvant treatment management against CVDs and obesity.

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CHAPTER ONE
INTRODUCTION

1.1 Research Background

Cardiovascular diseases (CVDs), including heart diseases and vascular diseases, are most critical global health threats, contributing to more than one-third of the mortality and morbidity worldwide (Deaton *et. al.*, 2011). In most cases, these clinical conditions result from atherosclerosis, which was once identified as a lipid-storage disease (Rocha & Libby, 2009). Now, CVD is recognized as a chronic inflammatory condition of the vessel wall that results from the transendothelial passage (transcytosis) of cholesterol-rich atherogenic Apo-B lipoproteins (VLDL, IDL and LDL) from the plasma into the intima. Smoking, obesity, hypertension, diabetes, physical inactivity and hypercholesterolemia are established risk factors of CVD (Zhaoxia Wang & Nakayama, 2010). Among these factors, obesity is currently identified as the main factor being associated with cardiovascular disease (Sowers, 2003).

Obesity and overweight are defined as abnormal or excessive fat accumulation that may impair health and are the fifth leading risk for global deaths (World Health Organization, 2013). Sources of fat deposition come from high-fat diet intakes or from immoderate sugar consumption (De Wit *et. al.*, 2012). Current national nutrition and health surveys reveal that Malaysians are affected by western health problems (Nazaimoon *et. al.*, 2011), while there is a paradigm shift in western nations where sugar is regarded as an independent risk factor for CVD (Schmidt, 2014). The escalation of obesity, once thought to be an urban phenomenon, has now spread to the rural population at an alarming rate (Ismail, Chee, & Nawawi, 2002). The prevalence of overweight among Malaysian adults has increased almost two fold from 16.6% to 29.7% in 2009 (Azmi *et. al.*, 2009) while the prevalence of obesity increased from 12.2% in 2003 to 15.1% in 2011 (Jan Mohamed *et. al.*, 2015).

The ongoing conventional therapy for obesity is bariatric surgery, containing Roux-en-Y gastric bypass, sleeve gastrectomy, duodenal switch, and employment of an adjustable gastric band. Bariatric surgery can cause severe short and long-term drawbacks. Researchers have been developing pharmacotherapies and minimally