

Polysaccharide peptides of *Ganoderma lucidum* effects as antioxidant, antiinflammation, and endothelial protector in high risk patients of atherosclerosis

Djangan Sargowo, Olivia Handayani, Nizamuddin Ubaidillah, Adriyawan Widya, Vittryaturida, Kartika Siwi, Mirza Failasufi, Fadhli Ramadhan, Hesti Wulandari, Yoga Waranugraha and Dinarsari Hayuning Putri
University of Brawijaya, Indonesia

Background: *Ganoderma lucidum* is a type of mushroom that has been used for thousand years throughout Asia. It is known to demonstrate numerous health benefiting properties including antioxidant, antiinflammation, anticancer effects, hypoglycaemic and blood cholesterol reducing properties. This research was conducted to determine the efficacy of *Ganoderma lucidum* polysaccharide peptides (PsP) as antiinflammation, antioxidant, and endothelial protector in cardiovascular disease.

Methods: This is a true experimental study with pre- and post-test design of 37 high risk patients of cardiovascular disease based on the Framingham Risk Score that was conducted for 3 months. They were advised to consume PsP 3x250 mg as adjuvant to their previous medications. They did some examines. Statistical analysis was conducted using paired t-test for parametric data and Wilcoxon test for nonparametric data.

Results: From 37 patients we found that the administration of PsP 3x250 mg could reduce total cholesterol level from 219.46 ± 49.49 to 201.43 ± 81.63 ($p=0.193$). PsP administration, however, decreased HDL cholesterol (HDL-C) levels by 7.84 ± 10.79 ($p=0.000$). The systolic blood pressure decreased from 130.14 ± 43.37 mmHg to 118.24 ± 55.68 mmHg ($p=0.109$), and the diastolic blood pressure decreased from 80 ± 25.74 mmHg to 73.24 ± 33.85 mmHg ($p=0.102$). Despite a great reduction of blood pressure to normal range, it was not statistically significant. The reduction of anti-inflammatory markers, interleukin 6 (IL-6), from 279.75 ± 120.76 to

29.32 ± 26.44 ($p=0.000$) and tumour necrosis factor alpha (TNF alpha), from 13447.84 ± 2199.46 to 544.85 ± 292.06 ($p=0.000$) were significant. Malondialdehyde (MDA) level also decreased significantly with PsP for 3 months (114.13 ± 24.56 to 36.84 ± 28.39 , $p=0.000$). Circulating endothelial cell (CEC) level significantly reduced ($p=0.000$) and endothelial progenitor cell (EPC) level significantly increased ($p=0.000$).

Conclusions: The administration of PsP *Ganoderma lucidum* for 3 months in high risk patients with hypertension can reduce the blood pressure within normal range; improve total cholesterol and LDL-C level and significantly pivotal role as antiinflammation, antioxidant, and endothelial protector in cardiovascular disease.

Speaker Biography

Djangan Sargowo, MD, PhD, FIHA, FACC, FESC, FAPSC, FASCC, FINASIM, is a Professor at the University of Brawijaya, and is board certified in Internal Medicine and Cardiovascular Disease. His clinical interests include management of ischemic heart disease, congestive heart failure, hypertension, diabetes mellitus, dyslipidemia and peripheral vascular disease. He received his MD from University of Gadjah Mada, Yogyakarta, Indonesia. He received training in Internal Medicine at Airlangga University and Cardiology at University of Indonesia. He received his PhD degree in Medicine from University of Airlangga. In the past, Barry served as Head of Cardiology and Vascular Department at Dr. Saiful Anwar General Hospital Malang and Director of Postgraduate Program at University of Brawijaya. He is currently a Fellow of Indonesian Heart Association, a Fellow of the American College of Cardiology, a Fellow of the European Society of Cardiology, a Fellow of Asia Pacific Society of Cardiology, a Fellow of ASEAN Federation of Cardiology, and a Fellow of Indonesian Society of Internal Medicine. He serves as Director of Brawijaya University Teaching Hospital, Chairman of Malang Molecular Biology Institute and as Chairman of Center for Degenerative Diseases, Brawijaya University.

e: djangan@yahoo.com

 Notes: