THE SECOND

ICATD

International Conference on AGROMEDICINE & TROPICAL DISEASES

MEDICAL FACULTY - UNIVERSITY OF JEMBER

PROCEEDINGS

Current trends, challenges, and issues in Agricultural Medicine :
"From Rural to Urban, from Ocean to Island, and Molecular to Clinical"

OCTOBER 20-21, 2018

PROCEEDING

2nd INTERNATIONAL CONFERENCE ON AGROMEDICINE AND TROPICAL DISEASE

"Current Trends, Challenges, and Issues in Agricultural Health Medicine: From Rural to Urban, Ocean to Island and Molecular to Clinical"

Aston Jember Hotel and Conference Center, Jember, East Java
October, 20th – 21, 2018

UPT PENERBITAN
UNIVERSITAS JEMBER

2nd INTERNATIONAL CONFERENCE ON AGROMEDICINE AND TROPICAL DISEASE

"Current Trends, Challenges, and Issues in Agricultural Health Medicine: From Rural to Urban, Ocean to Island and Molecular to Clinical"

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ISBN: 978-602-5617-11-9

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Published by:
UPT Penerbitan Universitas Jember

Address Editor :
Jember University Press
Jl. Kalimantan, No. 37 Jember
Telp. 0331-330224, Ext. 0319, Fax. 0331-339039

GREETING MESSAGE

Assalamualaikum Wr. Wb.
Good morning and best wishes

The Honorable, Rector of University of Jember
The Honorable, Dean Faculty of Medicine, University of Jember
The Honorable, All Speaker of The Conference
The Honorable, Guest
The Honorable, Conference Committee
Dear All, All Participants of The Conference

The Faculty of Medicine, University of Jember organize **The International Conference on Agromedicine and Tropical Diseases (ICATD)** that has been held biannually at different venues. The first time, ICATD held in The Faculty of Medicine, University of Jember on 2016 and now we organize the second ICATD at Aston Jember Hotel and Conference Center on October 20th -21st , 2018.

Agromedicine is needed to provide occupational and environmental health safety in agriculture. In the simple definition, agromedicine is a study of human health related to agriculture. The needs for agromedicine research for the improvements on occupational and environmental health and safety in agriculture are growing. The challenges in tropical disease are also increasing that requires a global solution for prevention and elimination. This event would facilitate dissemination of research on this topic, and surely, it will be an outstanding place for networking opportunities to discuss interesting ideas and develop the fruitful project in the future. As a major goal of this event, we hope that it can be an excellent chance for coordinating new partnerships which advance collaboration in the research field as well as the career of all participants. The researchers, practitioners and students from universities, health institutes, hospitals, chemists, government and non-government agencies in health sciences could actively participate on this conference.

Researches in agromedicine and tropical disease field have to be encouraged. One of the way to encourage the development of agromedicine and tropical disease research in Indonesia, and in all over the world, is to promote scientific forums, where scientists can share their experiences, publish their results, and get new insight/idea for the improvement of their research.

Jember is a city full of wonder located in the East Java province, Indonesia. Jember area is dominated by farming, plantation, and fishing, on the other hand Jember has a beautiful view of mountains and beaches. It is a great privilege for me to serve as the chair of the 2nd ICATD and it is my hope that this international event will expand our horizon in agromedicine and tropical diseases, particularly in current trends, challenges and issues in Agricultural Health medicine.

Yunita Armiyanti
Chair of the 2nd ICATD Organizing Committe

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LIST OF ORAL PRESENTATION

LIST OF POSTER PRESENTATION

PROGRAM
2nd INTERNATIONAL CONFERENCE ON AGROMEDICINE AND TROPICAL DISEASE
"Current Trends, Challenges, and Issues in Agricultural Health Medicine: From Rural to Urban, Ocean to Island and Molecular to Clinical"

DAY 1 : 20 October 2018

07.30 – 08.30	Registration Day 1	
08.30 – 09.00	Opening Ceremony	Opening Ceremony
		Traditional Dance
		Speech:
		1. Chairwoman of organizing (DR. dr. Yunita Armiyanti, M.Kes)
		2. Dean of Faculty of Medicine University of Jember (dr. Supangat, M.Kes, PhD, SP.BA)
09.00 – 11.30	Plenary Session	Keynote Speaker I (Prof. DR. dr. Nasronudin,Sp.PD.,K-PTI FINASIM)
		Keynote Speaker II (Prof. Drs. Bambang Kuswandi, M.Sc.,Ph.D)
		Keynote Speaker III (Prof. Susan Alison Brumby)
		Discussion
11.30 – 13.00	Lunch (ISHOMA)	
13.00 – 15.00	Paralel Session	Oral & Poster presentation
15.00 – 15.30	Coffee break	
15.30 – 17.00	Bussiness Meeting	Establishment of Konsorsium Agromedis Indonesia (invitation only)

DAY 2 : 21 October 2018

07.30 – 08.00	Registration Day 2	
08.00 – 10.40	Plenary Session	Keynote Speaker IV (Prof. Chihaya Koriyama, MD, Ph.D)
		Keynote Speaker V (Dr. Vickneshwaran Muthu)
		Keynote Speaker VI (Dr.rer.nat. Anna Artati, M.Sc., M.Si)
		Discussion
10.40 – 12.40	Parallel Session	Oral & Poster presentation
12.40 – 13.30	Lunch	
13.30 – 14.00	Closing ceremony	

ORAL PRESENTATION

2nd INTERNATIONAL CONFERENCE ON AGROMEDICINE AND TROPICAL DISEASE

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Aston Jember Hotel and Conference Center, Jember, East Java
October, 20th – 21, 2018

CERTIFICATE

OF APPRECIATION

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Wahyudi Widada, S.Kp., M.Ked

AS A **ORAL PRESENTATION**

The 2nd International Conference on Agromedicine and Tropical Disease

Current trends, challenges, and issues in Agricultural Medicine :
"From Rural to Urban, from Ocean to Island, and Molecular to Clinical"

JEMBER, OCTOBER 20-21, 2018
SAPPHIRE BALLROOM, ASTON HOTEL & CONFERENCE CENTER
JEMBER, EAST JAVA, INDONESIA

dr. Supangat, M.Kes., PhD., Sp.BA
Dean of Medical Faculty University of Jember

Dr. dr. Yunita Armiyanti, M.Kes
Chairman of The 2nd ICATD 2018

POTENCY WET-THERAPY REDUCE APO-B AND TOTAL CHOLESTEROL IN HYPERCHOLESTEROLEMIA PATIENTS

Wahyudi Widada1, Teddy Ontoseno 2, Bambang Purwanto 3

1. Muhammadiyah University of Jember, East Java, Indonesia
2,3. Faculty of Medicine, Airlangga University of Surabaya East Java, Indonesia

ABSTRACT

Hypercholesterolemia is a high level of cholesterol in the blood. Patients must take anti-cholesterol drugs for a long time, so they are at risk of experiencing side effects from the drug. Apo-B and total cholesterol are indicators of cholesterol levels in the blood. Wet cupping therapy is a method of excreting metabolic waste in the blood through the surface of the skin. The study aims to prove the potential of wet cupping therapy as a complementary therapy to reduce Apo-B and total cholesterol. Method: This research is Quasy experimental research using humans as research subjects. The dependent variable is Apo-B, and total cholesterol gave wet cupping treatment. Cupping is done twice, 7 points, using a G21 needle. A large sample of 32 people with hypercholesterolemia divided into treatment groups and control groups. The research subjects were selected based on sample inclusion criteria. After 12 hours of fasting and still taking simvastatin, blood was taken through 5ml of the brachial vein. Put into a 2ml purple tube containing EDTA the rest inserted in a red tube. Apo-B measurement using ELISA sandwich method, elabscience reagent, Biopharma ELISA reader tool, in units of ng/ml. Total cholesterol uses the enzymatic colorimetry method, diasys reagent, Biolyzer100 spectrophotometry, in mg/dl units. Data analysis was carried out with the Wilcoxon Signed Ranks Test with a significance level of 5% ($\alpha = 0.05$), the pre-data compared with the post data. Results: A significant reduction in Apo-B measurements with p-value 0.000 ($\alpha < 0.05$), SD 42. A significant reduction also occurred in the total cholesterol group. Obtained p-value 0.005 ($\alpha < 0.05$) SD 0.23. Conclusion: Intervention of wet cupping therapy can reduce Apo-B levels and total cholesterol in the blood. Further research needs to be done to measure the potential for prevention of atherosclerosis.

Keywords: wet cupping, Apo-B, total cholesterol, blood

BACKGROUND

Cupping has been used in medicine since ancient times. Even Hippocrates uses cupping in cases of internal disease (Mahdavi et al. 2012). The duration of this cupping history proves that cupping done correctly is safe and effective. There is a misperception in interpreting wet cupping. The needle depth of the skin is only 0.05mm. The wound with the needle does not cause blood to bleed. New blood comes out after being withdrawn with a 200mmHg negative power pump (Subadi, I.2014). Cupping is not an act of removing blood but removing metabolic waste called causative pathological substances (El-sayed 2013). In other words, wet cupping does not reduce circulating blood volume. The blood coming out of the wound is "bloodlike" which trashes cholesterol metabolism, old erythrocytes, etc. The amount of

cupping blood done correctly does not reduce hemoglobin (Mourad et al. 2016). The study aims to prove the potential of wet cupping therapy as a complementary therapy to reduce Apo-B and total cholesterol.

Cholesterol is present in tissues and plasma lipoproteins in the form of free cholesterol or a combination of long chain fatty acids as cholesterol esters. Cholesterol is synthesized in many tissues from acetyl co-A and is removed from the body in the bile as a cholesterol salt. Cholesterol esters are a form of cholesterol storage in almost all body tissues. The main source of cholesterol comes from the synthesis in the body itself, namely endogenous cholesterol and from foods known as exogenous cholesterol. Acetyl CoA is the source of all carbon atoms in cholesterol (Murray et al. 2009).

Cholesterol is not soluble in blood fluids, for it to be sent to the whole body needs to be packaged with proteins into particles called lipoproteins, which can be considered as carriers of cholesterol in the blood. The main proteins that makeup LDL are Apo-B (Apolipoprotein-B) (Walldius G, and Jungner I. 2004). In contrast, HDL in its operation clears excess cholesterol from the walls of blood vessels by transporting it back to the liver. The main protein that forms HDL is Apo-a (Apolipoprotein-A). The involvement of HDL cholesterol in reserve cholesterol transport is a mechanism to protect the endothelium against the risk of atherosclerosis. HDL has anti-inflammatory, antioxidant, antithrombotic properties. HDL is also antiatherogenic (Niasari et al. 2007).

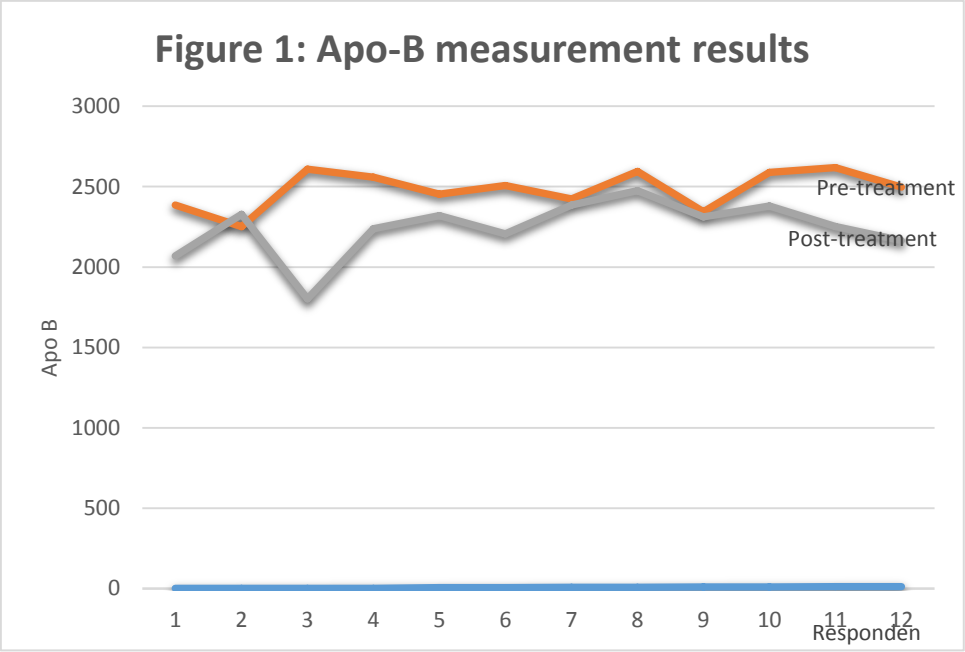
METHODOLOGY

This research is Quasy experimental research using humans as research subjects. The independent variables were wet cupping therapy, seven coats in the back area, negative pump 5 minutes then wound with a G21 needle as many as 15 punctures with a depth of 0.05mm. The dependent variable is Apo-B and total cholesterol. Measurements are carried out twice, pre and post. A large sample of 33 people with hypercholesterolemia was divided into treatment groups and control groups. The research subjects were selected based on sample inclusion criteria, aged 45-55 years, not suffering from chronic diseases, total cholesterol> 200mg. After 12 hours of fasting and still taking statin anti-cholesterol drugs, blood was taken through 5ml of the brachial vein. Put into a 2ml purple tube containing EDTA the rest was inserted in a red container. Apo-B measurement using ELISA sandwich method, elabscience reagent, Biopharma ELISA reader tool, in units of ng/ml. Total cholesterol uses the enzymatic colorimetry method, diasys reagent, Biolyzer100 spectrophotometry, in mg/dl units. Data analysis was carried out with the Wilcoxon Signed Ranks Test with a significance level of 5% ($\alpha = 0.05$), the pre-data was compared with the post data. The study was

conducted at the Biochemistry Laboratory of the Faculty of Medicine, University of Jember. The research ethics test was obtained from the University of Jember Ethics Committee in December 2017

RESULTS AND DISCUSSION

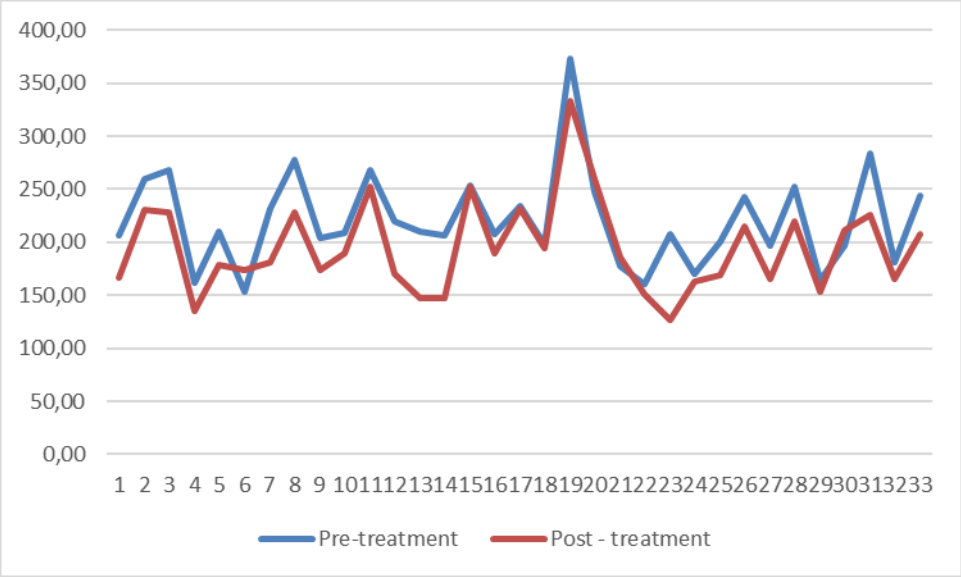
Results: measurement of pre-Apo-B data in 12 study subjects obtained mean 2.49 SD 0.117. The post data obtained mean 2.24 SD 0.177. The Wilcoxon Signed Ranks Test was obtained p-value 0.005, because p-value <0.05, this decrease was significant.



Source: 2018 primary data

Figure 1: Apo-B measurement results pre and post, n = 12 people

Results: measurement of total pre cholesterol data in 33 study subjects obtained mean 226.6 min 153.3 max 373.33. The post data obtained mean 199.3 min 126.6 max 333.3. Wilcoxon Signed Rank Tests obtained p-value 0.000, Cor 0.772. Because p-value <0.05, this decrease is meaningful.



Source: 2018 primary data

Figure 2: Results of the measurement of total cholesterol, pre, and post, n = 33 people

This measurement is by research conducted by Saryono (2010), Mustafa L et al. (2012), Niasari M, et al. (2007) that cupping can reduce cholesterol levels. As a result of keratinocyte clotting in the skin will experience hypoxia and induce hypoxia-inducible factor (HIF-1α) as an effort to self-defense (Ontoseno, 2004). HIF-1α activates macrophages in the skin which then produces proinflammatory genes such as IL-1. IL-4, IL-6, and TNF-α (Subadi, 2014). Interleukin-6 secreted by macrophages acts to stimulate the immune response, for example after trauma or tissue damage that leads to inflammation. The release of IL-6 stimulates young macrophage cells to mature and be able to do phagocytosis more efficiently. IL-6 also stimulates monocytes to produce inflammatory cytokines that play a role in local and systemic inflammation, resulting in accelerated proliferation and differentiation of macrophages (Ilkay, 2005).

LDL (low-density lipoprotein) is a source of cholesterol for an extrahepatic tissue. If LDL is very excessive, the LDL uptake system will be saturated so macrophages can take that excess LDL. Macrophages capture some LDL cholesterol before it is oxidized. The more LDL cholesterol levels in the plasma, the more macrophage cells will be achieved. Furthermore, macrophages will experience efflux, and nascent HDL will approach the macrophage to take LDL cholesterol.

Furthermore, the nascent HDL becomes adult HDL. After taking free cholesterol from macrophage cells, free cholesterol will be esterified to cholesterol ester by the enzyme Lecithin Cholesterol Acyl Transferase (LCAT). So HDL here functions as an absorbent of LDL cholesterol from macrophages and as a carrier of LDL cholesterol back to the liver so that cholesterol levels in the plasma decrease (Kwiterovic et al. 2000).

According to El-Sayed, et al., (2013), cupping is a minor excretory surgical procedure that has a medical and scientific basis in cleansing the blood and interstitial spaces of causative pathological substances (CPS) cholesterol as the production of metabolic waste. Many research results report that cupping can reduce LDL cholesterol. HDL cholesterol functions as an absorbent of LDL cholesterol from macrophages and as a carrier of LDL cholesterol back to the liver with the help of pre-HDL (Praningsih.2017). Pre β-HDL has a role in the process of transporting back cholesterol (reverse cholesterol transport) which can increase the excess cholesterol efflux from the peripheral tissue back to the liver to be excreted through bile. The acceleration of macrophage migration also increases due to IL-6 stimulation (Walldius et al.200).

Wet cupping treatment is a non-infectious inflammatory reaction that stimulates the release of chemical mediators including IL-1, IFN-γ, IL-6, IL-8, IL-18 which will activate macrophages so that cholesterol efflux occurs. Wet cupping treatment will enable LCAT (Lecithin Cholesterol Asil Transferase) which converts HDL to HDL3. Cholesterol binds to HDL3 to be carried to the liver and is formed as bile acids which will then be excreted through the intestine (Siadat et al. 2004). Through this process, the cholesterol in the circulation will decrease to be expelled through the gut (Kwiterovic et al. 2000).

CONCLUSION

The intervention of wet cupping therapy has the potential to reduce Apo-B levels and total cholesterol in the blood. Wet cupping therapy can be considered as an intervention that can lower cholesterol, in addition to the use of anti-cholesterol drugs. Further research needs to be done to measure the potential for prevention of atherosclerosis.

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