THE EFFECTS OF TOCOTRIENOL-RICH FRACTION ON IMIQUIMOD-INDUCED PSORIATIC LESION IN MICE

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Disertation submitted in fulfillment of the requirements for the degree of

Master of Pathology

Faculty of Medicine

December 2017
AUTHOR’S DECLARATION

I declare that the work in this dissertation 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

Background: Psoriasis is a chronic, immune-mediated, inflammatory disorder involving mainly the skin and joints. It is a global health problem which results in localised or extensive development of erythematous scaly plaques, interfering with daily activities. Psoriasis has no cure however available treatment aims at controlling symptoms despite having many side effects. Imiquimod (IMQ)-induced psoriasis murine model has been widely used in research as it mimics human psoriatic lesions at morphological, histological, immunological and genetic levels. Studies comparing the effects of IMQ on male and female mice are scarce. Tocotrienols have anti-oxidative, anti-inflammatory, anti-mitotic and anti-angiogenic properties making them a potential therapeutic candidate for psoriasis. Aim: 1) To compare between IMQ-induced psoriatic lesions in male and female mice. 2) To investigate the clinical and histological effects of TRF application on the IMQ-induced psoriatic lesions. Method: Twenty-three 8-12 weeks old BALB/c mice were distributed into 4 groups; a female IMQ-TRF, male IMQ-TRF, IMQ-Placebo and IMQ control group. IMQ was applied topically to shaved backs of mice for six days. Psoriasis severity was scored every two days, using the Psoriasis Area Severity Index (PASI) including erythema, thickness and scaling. Tocotrienol-rich fraction (TRF) was applied on the skin lesions for 10 days and the PASI score recorded. The mice were sacrificed and back skin excised then examined histologically. Results: Both male and female mice developed similar clinical lesions following IMQ induction and the histological changes were comparable with features of human psoriasis. TRF improved the psoriatic lesions in male and female mice in similar days. Placebo treatment resulted in significantly less healing time compared to TRF. The histological analysis of the mice skin following TRF and placebo treatment showed little difference. Conclusion: Both male and female IMQ psoriasis mice model may be used. TRF ameliorates psoriatic lesions in mice however placebo resulted in less healing time. Red palm oil has potential therapeutic effects on psoriatic lesions.
ACKNOWLEDGEMENT

All praises are due to Allah, the Lord of the Worlds, the Merciful, the Compassionate, for giving me the opportunity to embark on my masters of Pathology and enabling me to complete this long and arduous journey successfully. Allah's Peace and Blessings be upon His Final Messenger, his pure family, his noble Companions, and all those who follow them with righteousness until the Day of Judgment.

Being the sole candidate for a pilot masters programme, this journey has indeed been very challenging and a priceless experience which has made me become a better human being. I am most grateful and humbled for the many people who have looked out for me throughout this formidable process.

First and foremost, I would like to thank my supervisor, Dr Effat Omar @ Abdul Rahman, for without her assistance and dedicated involvement in every step throughout the process, this dissertation would have never been completed. I would like to thank you very much for your support and guidance over these past four years.

I would also like to show gratitude to the co-supervisors of this project, Prof. Dr Sabariah Abdul Rahman, Prof. Dr. Methil Kannan Kutty and Assoc. Prof. Dr. Gabriele Ruth Anisah Froemming for their invaluable guidance and encouragement.

I would also like to thank the Head of Pathology Department, Assoc. Prof Dr. Noor Kaslina Mohd Kornain, MPATH coordinator Dr Norsalmah Abu Bakar, Head of Anatomic Pathology Unit, Dr Mardiana Binti Abdul Aziz, all Anatomic Pathology lecturers including Prof Dr Siti Aishah Che Md Ali and Dr Norizal Mohd Noor. Not forgetting all my Part 1 lecturers who have played an essential role in guiding and teaching me vital knowledge and skills to become a great pathologist.

Getting through my dissertation required more than academic support, and I have many, many people to thank for assisting in my work including the staff at LACU and CPDRL especially the anatomic pathology unit.

Most importantly, none of this could have happened without my family. To my awesome parents, Prof. Ir. Dr. Mohd Azraai Bin Kassim and Hjh. Rahimah Binti Abdul Rahman, thank you for all your support and encouragement. Both of you have shaped me into the person I am today. To my siblings Zainab, Amrah, Munibah, Hafizah and Basheer for always being there whenever I needed you guys the most. A big thank you to my other half Ahmad Zubair W Ab Rahim, for going through this roller coaster ride with me and our three children, Taariq, Kauthar and Yusra.

This dissertation stands as a testament to all who believed in me and what I could accomplish.
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