UNIVERSITI TEKNOLOGI MARA

SAFETY AND EFFICACY OF WARFARIN IN TREATING ATRIAL FIBRILLATION

MUHAMAD NAZRIN BIN MAZLAN

Dissertation submitted in partial fulfilment of the requirements for the degree of Bachelor of Pharmacy (Hons)

2014

ACKNOWLEDGEMENT

First and foremost, thankful to Allah, the All Mighty, The Most Merciful and The Most Graceful for giving me chance to complete this research. A deep gratitude to my supervisor Madam Shazwani Shaharuddin for patience and giving me guide throughout this research. Not to forget, pharmacist in Hospital Selayang, Puan Salihah binti Aidit that kindly helping me in collecting the variable of data for this research.

Thank you also to my family that support me in order to finish this research. I would to give thanks to all my friends that help in giving information and also guidance to accomplish this research. Last but not least, thank you also to my partner Mohamad Amal bin Jasmi for being together contributing to this research.

TABLE OF CONTENTS

ABSTRACTS

Background: Warfarin is an anticoagulant that inhibits the production of Vitamin K. It is used as in prevention of stroke in atrial fibrillation patients. This study aimed to evaluate the safety and efficacy of warfarin in the second six months of treatment by evaluating Time in Therapeutic Range of patients and evaluating $CHADS_2VASc$ and HASBLED score and their relationship to stroke and bleeding incidences. *Results and Discussions:* A total of 167data of patients were collected retrospectively. Out of 139 patients who had TTR outside the intended range (<75%) 26 experienced bleeding and 1 had stroke in the second six months of treatment. From 28 patients who had TTR >75%, 4 experienced bleeding and none had stroke. Increase HASBLED score showed increase bleeding and increase risk of major bleeding event. The common reason for INR outside range was drug interaction and side effects with 39.5% (n=66) patient. *Conclusion:* The number of patients with TTR >75% (n=28) was lesser than TTR <75% (n=139). The incidence of bleeding was lower in 26 out of 139 who experienced bleeding with TTR <75%. This shows that warfarin could be safe in prevention of stroke with a management and follow up.

Chapter 1

INTRODUCTION

1.1 Background

Warfarin is an anticoagulant. It is a vitamin K antagonist. Warfarin is used as treatment and propylaxis of embolisation in heart disease and atrial fibrillation (Committee, 2013). It works by slowing down production of vitamin K in the body thus slowing the blood clotting process. Blood will flow freely and less likely to clot in the heart or blood vessels (Nordqvist, C, 2013).

Warfarin was shown to be effective in treating atrial fibrillation but has a narrow therapeutic range. Process of monitoring needs to be done to ensure that the International Normalized Ratio (INR) were around the range (2.0 to 3.0). Study shows that a good monitoring of INR leads to better outcome of improvement in prevention of stroke (Morgan et al., 2009). Doses are adjusted based on the INR value (Andreoli, 2010).

Warfarin has 2 enantiomers, where S-enantiomer is more active than R-enantiomer. They are metabolized in liver by CYP2C9. With the help of CYP2C19, 3A4 and 1A2 serve as minor metabolic pathways (Yu, Bostwick, & Hallman, 2011). Warfarin is completely absorbed just after the oral administration with the peak concentration within the first 4 hours. Distribution of warfarin is relatively small