

UNIVERSITI TEKNOLOGI MARA

**SAFETY AND EFFICACY OF WARFARIN IN
HEART VALVE REPLACEMENT**

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ABSTRACT

Background: Warfarin is an oral anti-coagulant that reverses the effect of Vitamin K in the body. It is essentially a requirement for heart valve replacement patients. This study aims to assess the safety and efficacy of warfarin during the treatment by evaluating Time in Therapeutic Range of patients and their relationship to bleeding incidents and stroke. *Results and Discussion:* A total of 32 data of patients were collected retrospectively. In 28 patients, TTR were found to be outside its proposed range ($<75\%$) with 11 of them experiencing bleeding incidents during warfarin treatment. Meanwhile, only two patients out of four with TTR $>75\%$ experienced bleeding. However, none of these patients experienced stroke. The most common cause of INR readings being out of range was found to be due to drug interaction and its side effects which can be observed in 12 patients. On the other hand, the cause was undetermined in three patients. *Conclusion:* It would be challenging to maintain TTR at $>75\%$ as warfarin therapy requires discipline and commitment from patients. No cases of stroke was recorded. The safety is also proven provided that good patient management is practiced between the patient, caregiver and prescriber.

Chapter 1

INTRODUCTION

1.1 Background

Valvular heart disease is known as defect or damage in one of the four valves in the heart (“Valvular Heart Disease,” n.d.). Recently, valvular heart disease is a growing concern in developing countries. Luckily, the advancement in technology has made it possible for patients to undergo valvular heart replacement as part of treating the disease. Unfortunately, the developmental process to ensure an ideal replacement is still ongoing because patients that have undergone mechanical valves replacement show thrombogenic risk, even though almost every research proved that mechanical valve replacement does increase survivability (Torella et al., 2014). When rheumatic disease is now becoming less common than before, there is steady increment in life expectancy as well as valve degeneration disease. In USA, the prevalence is generally by 2.5%. According to age-related variation, 0.7% from age range of 18 – 44 years old and 13.3% from those who are over 75 years old (d’ Arcy et al., 2010).

Consequently, there is an increase in induction of valve thrombosis (Panduranga et al., 2012). Introducing mechanical heart valve into a person will produce different blood flow conditions which also known as trans-protetic turbulence and stagnation. A significant increase in local shear stress will cause endocardial damage prior to high-velocity, turbulent flow. Stagnation is the immobile part of circulation that lies outflow side of the device in which it could actually enhance entrapment of coagulation factors and platelets. That is why a regurgitant jet or washing jet is provided along with device to overcome the situation. Thrombogenicity is dependent on materials, design and size of the individual device which means high surface of device that is in contact with blood will exhibit higher risk of thrombus