ABSTRACT
Introduction: Warfarin, Acenocoumarol and Phenprocoumon are efficacious anticoagulant drugs for thromboembolic diseases, atrial fibrillation and artificial heart valves. Prescribing correct dose of coumarins is difficult because of pharmacokinetic and pharmacodynamic variations between individuals. They also have low safety margin. Various genetic and non genetic factors are responsible for dosing requirements. Acenocoumarol is commonly used oral anticoagulant. It’s effects are monitored by INR. It has been found that there is no correlation between dose of Acenocoumarol and INR in clinical practice. Measurement of plasma concentration of Acenocoumarol will help in adjusting the dose. Aim and Objectives: To compare the trough and Cmax Plasma concentrations of Acenocoumarol in mechanical heart valve patients. Methodology: After ethics approvals and Patients were recruited into the study after signing informed consent in English or Tamil, Age and sex of the participants were recorded. 2 ml of blood samples were collected for estimating trough and Cmax levels (2hrs after drug). High–performance liquid chromatography Concentration was used to measure the concentrations of Acenocoumarol. Statistical Analysis: Student t test was used to compare mean of trough and Cmax concentrations of Acenocoumarol. One way analysis of variance (ANOVA) was used to compare trough and Cmax plasma concentration of Acenocoumarol. Result: 56 patients were enrolled into the study. Among these 28 were males and 28 were females. At 5% level of significance there was no difference between trough and Cmax concentrations of Acenocoumarol. Mean, minimum and maximum plasma concentration was lower with trough concentration of Acenocoumarol. Conclusion: Trough and Cmax plasma concentration of Acenocoumarol was similar. So plasma concentration of Acenocoumarol can be measured at any time. However it has to be confirmed with larger population, since various factors can affect the plasma concentration of Acenocoumarol.

KEYWORDS: Warfarin, Acenocoumarol and Phenprocoumon.
Patient’s with normal liver function Vitamin-K restricted diet, Patients who have completed 3 Months of post operation convalescent period.[6,7]

EXCLUSION CRITERIA
Known Major illness which lead to coagulation disturbance. (Hemophilia, Factor 5 Leiden mutation, Protein C deficiency, Protein S deficiency, Von Willebrand's disease (VWD), cirrhosis, Shock, Sepsis, Malignancy, Renal disease, Prolonged steroid use, Anti-phospholipid antibody syndrome (APLAS), Systemic Lupus Erythematosus (SLE)).[8]

Patients on drugs which are known to cause interactions with Acenocoumarol (Allopurinol, Amiodarone, Azathioprine, Betamethasone, Carbamazepine, Cefoxitin, Cholestyramine, Cimetidine, Dexamethasone, Doxycycline, Erythromycin, Fenofibrate, Fluvostatin, Gingko biloba, Ibuprofen, Ketoconazole, Lovastatin, Orlistat, Quinine, Zafirlukast).[9]

STUDY DESIGN – Cross sectional study.

TIMING OF THE BLOOD SAMPLE
2ml of blood was obtained from the patients at the trough (just before taking drug) and Cmax levels (Two hours after taking drug).[10]

Table 1: Comparison of Trough and Cmax levels of Acenocoumarol.

<table>
<thead>
<tr>
<th>Plasma Concentration of Acenocoumarol</th>
<th>Mean (ng/ml)</th>
<th>Standard Error</th>
<th>Standard Deviation</th>
<th>Minimum (ng/ml)</th>
<th>Maximum (ng/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trough (n=56)</td>
<td>14.98</td>
<td>0.5</td>
<td>3.738</td>
<td>10.12</td>
<td>29.18</td>
</tr>
<tr>
<td>Cmax (n=56)</td>
<td>63.69</td>
<td>2.57</td>
<td>19.21</td>
<td>25.1</td>
<td>116.74</td>
</tr>
</tbody>
</table>

DISCUSSION
A study was carried out to compare trough and Cmax plasma concentrations of Acenocoumarol. Patients were divided into two groups (treated and control). Trough was defined as just before taking drug. Cmax was defined as 2 hours after taking drug. A 2ml sample was collected from each patient. A cross sectional study was conducted to evaluate the pharmacokinetics of Acenocoumarol.[11,12]

METHODOLOGY
After ethics approvals and Patients were recruited into the study after signing informed consent in English or Tamil. Age and sex of the participants were recorded. 2 ml of blood samples were collected for estimating trough and Cmax levels. High performance liquid chromatography Concentration was used to measure the concentrations of Acenocoumarol.[11,12]

STATISTICAL ANALYSIS
The collected data were entered into SPSS version 19 for statistical analysis.

• student t test was used to compare mean of trough and Cmax concentrations of Acenocoumarol

• One way analysis of variance (ANOVA) was used to compare trough and Cmax plasma concentration of Acenocoumarol.

A P Value of <0.05 was considered statistically significant.

RESULT
56 patients were enrolled into the study. Among these 28 were males and 28 were females. At 5% level of significance there was no difference between trough and Cmax concentrations of Acenocoumarol.

REFERENCES


