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COMPARISON OF EFFECT OF DIFFERENT AGE GROUPS AND SEX WITH INR IN PATIENTS WITH ACENOCOUMAROL AFTER MECHANICAL HEART VALVE

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ABSTRACT

Acenocoumarol is a highly effective drug to be used as anticoagulant drug. Due to variation in anticoagulant action, monitoring of INR is needed to adjust the dosage. Various factors affect the dose requirement of Acenocoumarol like age, gender, weight, height, drug interactions and variations in the VKORC1 and CYP2C9 genes. So we planned to compare effect of sex and different age groups on INR in patients who are taking Acenocoumarol 2 mg after Mechanical heart valve. Cross sectional study. After ethics approvals and Patients who were satisfying the inclusion and exclusion criteria, were recruited after written informed consent either in English or Tamil. Age, sex and INR values of the participants were noted. Datas were statistically analysed. 56 patients were recruited into the study. In that 50% of patients were male and 50% patients were female. At 5% of significance there was difference between males and females with INR. Patients were divided into four categories based on age 19-41 years, 42-48 years, 49-52 years and 53 to 88 years. But at 5% of significance there was no difference between different age groups with INR. There was no correlation between different age groups and INR. Our study indicated there is significant difference in INR of Acenocoumarol between males and females. But there is no significant difference in INR of Acenocoumarol between different age groups. However there are various factors other than age and sex that can affect INR of Acenocoumarol, it has to be confirmed with larger samples.

Key words: Acenocoumarol, Anticoagulant, Mechanical heart valve.

INTRODUCTION

Acenocoumarol is a highly effective drug to be used as anticoagulant drug. It is given as once daily drug. Due to variation in anticoagulant action, monitoring of INR is needed to adjust the dosage [1]. The INR has to be maintained at 2-3.5 for various conditions [2]. If we are altering the dose of Acenocoumarol the INR should be repeated after one week. Various factors affect the dose requirement of Acenocoumarol like age, gender, weight, height, drug interactions and variations in the VKORC1 and CYP2C9 genes [3]. With aging from 30 to 80 years, there is decrease in dose requirement [4]. So age and sex are very important determinant in prescribing dose of

Acenocoumarol [5]. So we planned to compare effect of sex and different age groups on INR in patients who are taking Acenocoumarol 2 mg after Mechanical heart valve.

AIM AND OBJECTIVES

To find out the effect of age and sex on INR in patients who are taking 2 mg of Acenocoumarol after mechanical heart valve.

ETHICS

Clearance from Institutional human ethics committee was obtained for the conduct of the study.

Written Informed consent was administered to the participants.

METHOD

Study Population

Patients attending Cardiothoracic and Vascular surgery outpatient department

Inclusion Criteria

- Patients above 18 years and both sex,
- Patients who underwent mechanical heart valve replacement. Taking Acenocoumarol 2mg, Once daily dose [6].
- Patient's with normal liver function
- Vitamin-K restricted diet.
- Patients who have completed 3 Months of post operation convalescent period.

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, Malnancy, Renal disease, Prolonged steroid use, Anti-phospholipid antibody syndrome (APLAS), Systemic Lupus Erythematosus (SLE)) [7].

Patients on drugs which are known to produce interactions with Acenocoumarol (Allopurinol, Amiodarone, Azathioprine, Betamethasone, Carbamazepine, Cefoxitin, Cholestyramine, Cimetidine, Dexmethasone, Doxycycline, Erythromycin, Fenofibrate, Fluvostatin, Gingko biloba, Ibuprofen, Ketoconazole, Lovastatin, Orlistat, Quinine, Zafirlukast) [8].

Study Design

Cross sectional study

METHODLOGY

After ethics approvals and Patients who were satisfying the inclusion and exclusion criteria, were recruited after written informed consent either in English or Tamil. Age, sex and INR values of the participants were noted.

STATISTICAL ANALYSIS

The collected data were entered into SPSS version 19 for statistical analysis. student t test was used to find out the relation between Sex and INR Acenocoumarol, A P Value of <0.05 was considered statistically significant. One way analysis of variance (ANOVA) was used to compare INR of different age groups in patients taking 2 mg of Acenocoumarol, A P Value of <0.05 was considered statistically significant. Pearson correlation was done to find out the correlation between age and INR. Value of r closer to 1 or -1 considered as having positive or negative correlation.

RESULTS

56 patients were recruited into the study. In that 50% of patients were male and 50% patients were female. At 5% of significance there was difference between males and females with INR. Patients were divided into four categories based on age 19-41 years, 42-48 years, 49-52 years and 53 to 88 years. But at 5% of significance there was no difference between different age groups with INR. There was no correlation between different age groups and INR.

Table 1. Comparison of Sex with INR in patients who are taking Acenocoumarol

	Mean	Standard Error	Standard Deviation	Minimum	Maximum
Male (n=28)	2.62	0.13	0.69	1.74	4.4
Female (n=28)	2.98	0.14	0.76	1.64	4.55

Table 2. Comparison of Age groups with INR in patients who are taking Acenocoumarol

	Mean	Standard Error	Standard Deviation	Minimum	Maximum
19-41 years (n=15)	2.95	0.18	0.71	1.86	4.4
42-48 years (n=15)	2.74	0.2	0.77	1.74	4.25
49-52 years (n=12)	2.82	0.23	0.78	1.64	4.34
53-88 years (n=14)	2.76	0.21	0.79	1.87	4.55

DISCUSSION

It was considered that there will be influence of Age and sex on INR of Acenocoumarol. This study showed that mean INR was more in females than Males. Minimum INR of 1.64 was noticed in females while 1.74 was seen in Males. At 5 % level of significance there were difference between males and female with INR of Acenocoumarol (Table 1). There were more number of patients in 19-41 years and 42-48 years. While there were

less number of patients in 49-52 years. Minimum INR of 1.64 was seen in 52 year old patient and Maximum INR of 4.55 was seen with 62 year old patient. Mean INR was more in 19-41 years group and low with 42-48 years. At 5 % level of significance there were no difference between different age groups and INR in patients taking 2mg of Acenocoumarol. There were no correlation between different age groups and INR (Table 2).

CONCLUSION

Our study indicated there is significant difference in INR of Acenocoumarol between males and females. But there is no significant difference in INR of Acenocoumarol between different age groups. However there are various factors other than age and sex that can affect INR of Acenocoumarol, it has to be confirmed with

larger samples.

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Nil

CONFLICT OF INTEREST

No Interest

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