Predictors of health-related quality of life among warfarin patients

Running title: Predictors of HRQoL in warfarin patients

ABSTRACT

OBJECTIVE: This study aimed to determine various predictors and their impact on overall HRQoL among warfarin patients.

METHODS: A cross-sectional study using WHOQOL-BREF research tool was conducted among warfarin patients. Data was collected by convenience sampling method. Descriptive, comparative, and inferential statistics were used by Statistical Package for the Social Sciences (SPSS) ver. 24 to determine the predictors of HRQoL among warfarin patients.

RESULTS: The majority of the studied warfarin patients were females than males (n=221, 69.3%, and n=98, 30.7% respectively). In univariate analysis, statistically non-significant differences (p >0.05) were observed in gender, age, marital status and work. In multivariate analysis, significant differences (p <0.05) were observed in education, warfarin usage, and warfarin therapy duration.

CONCLUSION: These results indicated that education, warfarin usage, and warfarin therapy duration were the pure predictors of HRQoL among the studied cohort of the warfarin patients.

Keywords: HRQoL, predictors, WHOQOL-BREF, warfarin, multivariate

INTRODUCTION

Due to high inter and intrapatient variability, warfarin is only effective if its therapeutic range is maintained and if its blood levels are above or below its therapeutic window, it exhibits greater risks of bleeding and thrombosis respectively [1,2]. It is a most frequently used oral anticoagulant, that is often prescribed to control and prevent various thromboembolic diseases like venous thromboembolism, stroke, atrial fibrillation, and valvular heart disease [3-5]. Due to its narrow therapeutic window, warfarin always requires frequent and careful laboratory monitoring to minimize or avoid bleeding complications and to obtain optimum therapy outcomes [5,6]. As a matter of fact, warfarin usually causes adverse drug reactions (ADRs) that sometimes require hospital admission and if the length of hospitalization is increased it may lead to morbidity and mortality among patients on warfarin [7-9].

Health Related Quality of Life (HRQoL) is not only measured in healthy individuals but also in patients to estimate the overall health status of the society which ultimately helps in designing and implementing healthcare policies to improve the overall health status of the society [10-12]. The HRQoL is a multi-dimensional model generally used to observe the impact of health status on individuals' quality of life [13,14]. The WHOQOL-BREF research tool has been used by plenteous studies conducted in different parts of the world to determine HRQoL of chronic diseased patients as well as healthy individuals [10-14]. Though fewer studies across the

globe are evident in the literature regarding the impact of warfarin therapy on disease outcomes, warfarin therapy duration and its anticoagulation control, the association of warfarin therapy duration and INR, treatment satisfaction and association of knowledge and beliefs with anticoagulation control [13-20] but in the studied population, nothing is reported regarding the effect of sociodemographic predictors on HRQoL using the WHOQOL-BREF among warfarin patients.

The WHOQOL-BREF tool is comprised of four different domains named physical, psychological, social and environmental domains [10]. This study aimed to determine various predictors like gender, age, marital status, education, work, comorbidities, warfarin therapy usage, and duration and their impact on overall HRQoL among warfarin patients.

Statistical analyses

Percentages and frequencies were used for the categorical variables, while means and standard deviations were calculated for the continuous variables. Chi square, Spearman's correlation coefficient and multiple logistic regression were used to evaluate correlations and impact of various demographic variables on overall HRQoL of the studied warfarin patients. Data from the research questionnaire were analyzed using Statistical Package for the Social Sciences (SPSS) version 24.0.

RESULTS and DISCUSSION

The demographic data of the patients are presented in Figure 1. There was a total of 319 participants with more females than males (n=221, 69.3%, and n=98, 30.7% respectively). Around 106 (33.2 %) of the studied patients were less than 30-years of age whereas 213 (66.8%) were equal to or above than 30-years of age. A total of 4 (1.3%) warfarin patients had a primary

level of education and 315 (98.7 %) had a higher level of education. A total of 85 (26.6 %) warfarin patients had comorbidities and 234 didn't suffered from any comorbidity.

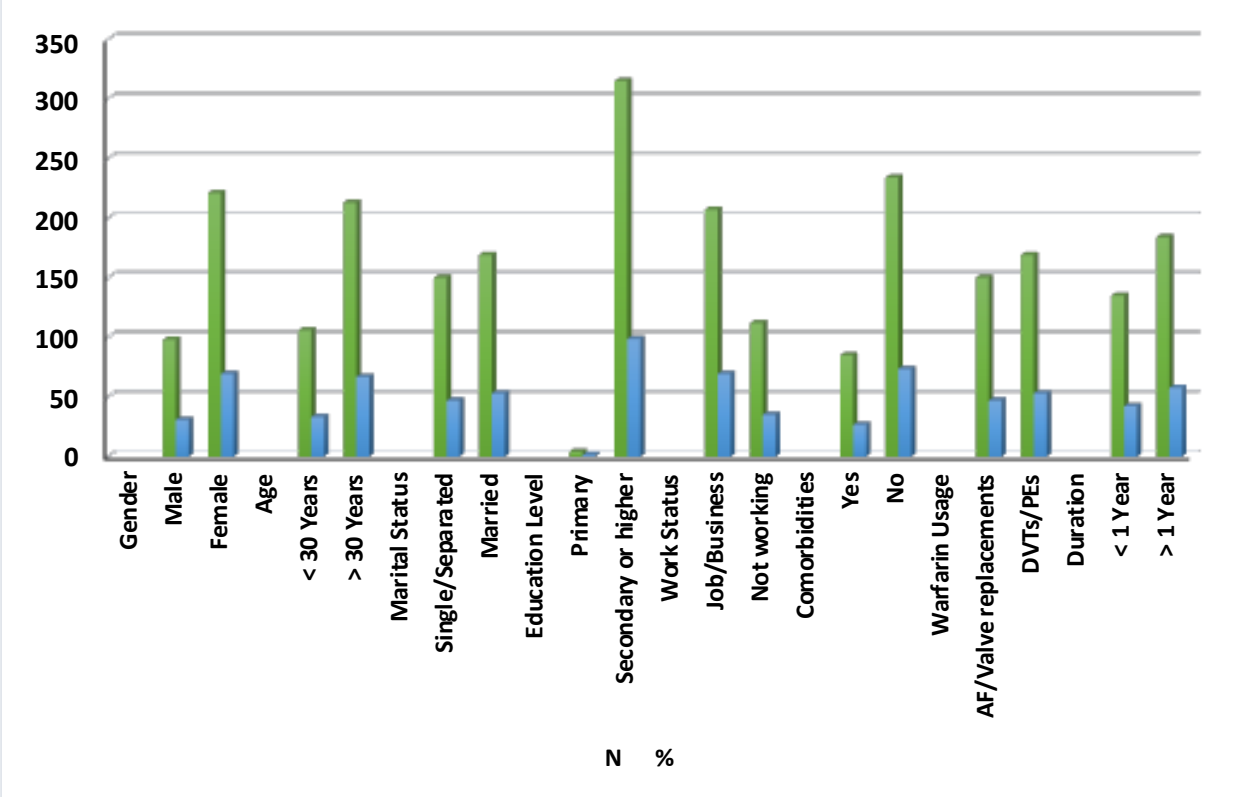

Figure 1: Demographic characteristics of the warfarin patients

Figure 2 presents the mean HRQoL scores for all four domains of WHOQOL-BREF research tool among the studied warfarin patients. In the physical domain, the mean score was 67.01 ± 13.67 while in the psychological domain of the WHOQOL-BREF, the score obtained was 71.27 ± 14.15. In the social domain of the WHOQOL-BREF, the score obtained was 71.92 ± 17.06 and in environment domain, the score was 68.00 ± 14.73.

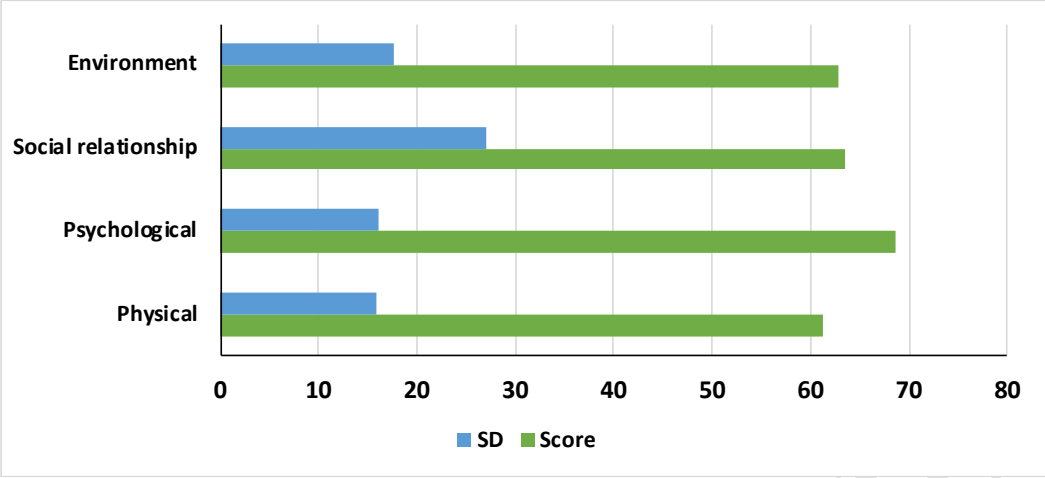

Figure 2: WHOQOL-BREF domains' scores

The current study determined the socio-demographic predictors of HRQoL among warfarin patients. Several factors were explored and their relationships towards overall HRQoL was determined using the WHOQOL-BREF among warfarin patients. Our study results showed statistically significant association (p<0.05) in various socio-demographic variables of the studied warfarin patients with the different domains of WHOQOL-BREF. Hence, our study confirmed that sociodemographic predictors could affect warfarin patients' HRQoL. In univariate analysis, our study did not observe any statistically significant associations (p >0.05) in gender, age, marital status and work with overall HRQoL among warfarin patients.

Table 1. Predictors of HRQoL among warfarin patients

Predictors	**Univariate analysis**		**Multivariate analysis**	
	COR (95% CI)	***p*-value**	**AOR (95% CI)**	***p*-value**
Gender				
Male	R			
Female	1.472 (2.68–1.01)	0.324		
Age (Years)				
< 30	R			
≥ 30	0.559 (0.87-0.11)	0.565		

Marital Status				
Single/Separated	R			
Married	2.333 (2.98–1.11)	0.358		
Education				
Primary	R			
Secondary or higher	2.889 (3.55–1.89)	0.002*	0.135 (1.32–0.32)	0.038*
Work				
Job/Business	R			
Not working	2.222 (2.98–0.21)	0.981		
Comorbidities				
Yes	R			
No	1.357 (2.05–1.01)	0.042*	0.221 (1.38–0.11)	0.261
Warfarin Usage				
AF/Valve replacements	R			
DVTs/PEs	1.999 (2.43–1.24)	0.008*	1.039 (1.76-0.66)	0.048*
Duration				
< 1 Year	R			
≥ 1 Year	2.457 (3.21–2.01)	0.019*	1.565 (2.35–1.11)	0.049*

R=Referent; SD=Standard Deviation; UOD=Unadjusted Odds Ratio; AOD=Adjusted Odds Ratio; CI=Confidence Interval; * Statistically Significance (< 0.05)

Education often advances self-learning and self-improvement in general health states among patients. These could often enhance self-satisfaction and result in improved HRQoL especially among chronic diseases patients like patients on warfarin. As a matter of fact, highly educated patients have better understanding of their disease states, drug doses, treatment regimens, and their disease understandings in general [21-24]. Moreover, to have optimum pharmacotherapy, highly educated patients are more likely to acclimatize their routine lifestyle and adopt preventive measures, resulting in improved therapy outcomes [24-27].

In our study, in univariate analysis, the higher educated patients had improved HRQoL (p <0.05) than the rest with less education. The apparent reason could be that an increase in drug or

disease-related awareness may make patients more aware of their drug usage pattern, medication adherence, dietary controls, and life-style modifications which in return might increase their overall HRQoL. On the other hand, in multiple logistic regression analysis, statistically a non-significance (p >0.05) was observed when the confounders were adjusted. Conversely, in univariate analysis, according to the findings of our study, comorbidities, warfarin usage, and warfarin therapy duration had statistically significant associations (p <0.05) with overall HRQoL among warfarin patients. And multiple logistic regression analysis revealed that warfarin usage, and warfarin therapy duration were statistically significant (p <0.05) predictors of HRQoL among warfarin patients in the studied cohort of the patients.

CONCLUSION

In conclusion, our study highlights that education, warfarin usage, and warfarin therapy duration were the pure predictors of HRQoL among the studied cohort of the warfarin patients.

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