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Assessment of Warfarin Therapy Knowledge among Patients with Cardiovascular Disease

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ABSTRACT

Objective(s): To assess of knowledge about warfarin therapy in patients with cardiovascular disease and to find out the relationship between patients' knowledge and sociodemographic characteristics.
Methods: A descriptive study was carried out in Ibn Al-Bitar Specialized center for Cardiac Surgery for the period between between August 3rd, 2022 to May 28th, 2023. A non-probability sampling was used among (210) patients with cardiovascular disease. The data for study was collected by using a questionnaire was composed of two parts namely: patients sociodemographic characteristics included (7) questions and Warfarin Knowledge scale consists of (24) questions. Data were analyzed using IBM SPSS version 26. Descriptive and inferential data analysis were utilized to summarize the study results.
Results: The study indicated that Patients with cardiovascular diseases had knowledge deficits (86.7%) about warfarin Therapy.
Conclusion: The study concludes that Patients with cardiovascular diseases had a low level of knowledge regarding warfarin therapy.
Recommendation: The study recommend to designing regular and periodic educational programs
regarding cardiac medications such as warfarin therapy for increasing patient's knowledge.

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تقييم معارف المرضى المصابين بالامراض القلبية الوعائية حول علاج الوارفارين

المستخلص

الهدف: لتقييم معارف المرضى المصابين بالأمراض القلبية الوعائية حول علاج الوارفارين و لإيجاد العلاقة بين معارفهم و وخواصهم الديموغرافية.

المنهجية: تم اجراء دراسة وصفية في مركز ابن البيطار التخصصي لجراحة القلب للفترة من ٣ اب ٢٠٢٢ إلى ٢٨ ايار ٢٠٢٣. تم اختيار عينة غير احتمالية تتكون من (٢١٠) مريض مصاب بأمراض القلب الوعائية. تم جمع المعلومات باستخدام استبانة تكونت من من جزئين : المتغيرات الديموغرافية ٧ اسئلة ؛ و يتكون مقياس المعارف حول علاج الوارفارين من (٢٤) سؤالاً. تم تحليل البيانات من خلال استخدام برنامج SPSS نسخة ٢٦. تم استخدام نهج تحليل البيانات الإحصائية الوصفي والاستقرائي.

النتائج: أشارت الدراسة إلى أن مرضى المصابين بالأمراض القلبية الوعائية لديهم نقص في المعارف المتعلقة بعلاج الوارفارين بنسبة (٨٦.٧٪).

الاستنتاجات: بينت الدراسة ان هناك نقص في معارف المرضى المصابين بالأمراض القلبية الوعائية حول علاج الوارفرين .

التوصيات: توصي الدراسة بأجراء برامج تعليمية خاصة بالعلاجات القلبية مثل علاج الوارفرين للمرضى المصابين بالأمراض القلبية الوعائية لزيادة معارفهم.

الكلمات المفتاحية : معارف, علاج الوارفرين , امراض القلب و الاوعية الدموية .

Introduction

Cardiovascular diseases (CVDs) are the leading cause of death worldwide every year [(1)]. According to the 2019 census, 32% of all fatalities worldwide were attributable to CVDs, with 17.9 million deaths globally[(1)]. Oral anticoagulation medication is administered to CVD patients to treat cardiac thromboembolism, severe left ventricular dysfunction, mechanical heart valves, and

Bio prosthetic heart valves [(2).] Clinically, oral anticoagulants like warfarin were utilized to treat these disorders[(3).] Warfarin has been the standard oral anticoagulant medication for many years, despite its limited therapeutic index and challenging administration[(4).] Warfarin affects the extrinsic coagulation pathway and lengthens the prothrombin time by acting in the liver to inhibit vitamin K production and decrease the production of the vitamin K-dependent clotting factors, which results in an anticoagulant effect. Warfarin also inhibits the synthesis of the coagulation proteins C and S[(5).]

Warfarin is the most widely used oral anticoagulant medication in the United States(6). It is now an effective treatment for thromboembolic illnesses on a medical level(7). Due to this, the number of patients receiving warfarin medication and those who are referred to anticoagulation clinics has dramatically increased [(8).]

Patients taking warfarin should be constantly follow-up because missed doses will reduce the medication's effectiveness and taking overdoses can have a variety of negative effects(9,10). Warfarin therapy's goal is to lessen blood's propensity to clot, not to totally stop it from happening. Because of this, it's important to closely check a person's blood's ability to clot while they're on warfarin using the International Normalized Ratio (INR). To keep the clotting time within the desired range, the warfarin dosage is changed(11). The therapeutic international normalized ratio (INR) range is typically 2.0–3.0, but it can occasionally be 2.5–3.5 when warfarin is being administered to prevent myocardial infarction or in those with high-risk mechanical prosthetic heart valves. Follow-up is required to prevent both high-intensity hemorrhagic events and low-intensity anticoagulant thromboembolic events.

The most common reason for hospitalization is a rise in INR over the therapeutic range, which creates a propensity for bleeding[(12).] Additionally, non-adherence

to warfarin therapy, which may be caused by patients' lack of knowledge [13]. As a result, it is important to evaluate the patient's understanding of warfarin therapy. It's critical to assess how well-versed these patients are in warfarin medication. Furthermore, healthcare providers should be aware that many patients with CVD using warfarin will have significant knowledge gaps[7,12].

Assessment of patient knowledge is the first step in raising the standard of anticoagulant therapy and patient care. In order to build a continuous system of quality improvement for anticoagulation monitoring and patient safety, patient knowledge can be identified and addressed. The purpose of this study is to assess knowledge about warfarin therapy among patients with CVD and also determined the relationship between these knowledge and their socio-demographical characteristic

Methods

Study design and setting

This is a descriptive study cross sectional conducted between August 3rd, 2022 to May 28th, 2023.

This study was conducted at Ibn Al-Bitar Specialized center for Cardiac Surgery, a government center in Baghdad, Iraq.

Study Sample and Sampling

A non-probability sampling was used to requited (210) patients with cardiovascular diseases.

Data collection and study instrument

The data for study was collected by using a questionnaire comprising 31 questions in two parts: first part was patients sociodemographic characteristics which included (7) questions. The second part was Warfarin Knowledge Scale developed by Elzeky, et al., (2015), which consists of [24] questions cover the main knowledge on warfarin. A one score for every correct answer and zero for incorrect answer and scores of each item were summed up, and the total score ranged from 0 to 24. The level of knowledge was categorized into good, fair, and poor for overall knowledge. A score of 75% = (18- 24) were classified as “Good”, from 74% to 50% = (12-17) classified as “fair”, and a score <50% = (0 - 11) was classified as “poor”. The copyright owner has granted the researcher permission to use Warfarin Knowledge scale via email.

Validity and Reliability of the study instrument

The tool was tested for content validity by a panel of 5 experts in the field of the study (4 were nurse professors working with faculty of nursing and medical – surgical nursing and medical field . Tool was tested for its reliability using the test–retest measurement and Cronbach,s alpha test . (Test – retest) reliability of knowledge questionnaire is ranged from r = 0.82 – r = 0.86 and Cronbach,s alpha (r. alpha) = 0.868 [14].

Ethical Consideration

The ethical approval was obtained from the Scientific Research Ethical Committee in the College of Nursing, University of Baghdad. Before collecting any data, patient's written consent was obtained. Patients was informed that their personal data would be kept private and secure both during and after their involvement in the study, and also provided with instructions on how to complete the questionnaire.

Statistical analysis

The data was analyzed using SPSS statistical analysis system version 26, the descriptive data analysis (frequencies and percentage (%), mean and standard deviation) and inferential data analysis.

Results

Table 1. Patient Socio-demographic Characteristic

No.	Characteristics		Sample	
			F	**%**
1	**Age (Year) M±SD= 48.3±11.7**	Less than 20 years	3	1.4
		20 –30 years	17	8.1
		30 –40 years	20	9.5
		40 – 50 years	58	27.7
		50 – 60 years	74	35.2
		60 years and olders	38	18.1
2	**Sex**	Male	87	41.4
		Female	123	58.6
3	**Level of education**	Read & write	55	26.2
		Primary school	80	38.1
		Intermediate school	37	17.6
		Secondary school	21	10
		Diploma	8	3.8
		University	9	4.3
4	**Occupation**	Unemployed	134	63.8
		Worker	26	12.4
		employee	29	13.8
		Retired	21	10
5	**Marital status**	Single	11	5.2
		Married	190	90.5
		Widowed/er	6	2.9
		Divorced	3	1.4
6	**Residency**	Rural	11	5.2
		Urban	190	90.5
		Suburban	9	4.3
7	Monthly income	Insufficient	153	72.9
		Barely sufficient	44	21
		Sufficient	13	6.2

F= frequency, **%**= Percentage, M= mean, SD: standard deviation.

Table 1 shows that average age for patients is 48.3 ± 11.7 years and the highest within the age group between 50-60 years old among 35.2% of them and 58.6% of patients are females. The majority of patients are married (90.5%) and are resident in urban as seem among 90.5%. A 63.8% of patients are either jobless or housewives and 72.9% of patients received insufficient monthly income.

Table 2. Overall Assessment of Patients' Knowledge about Warfarin Treatment

Knowledge	f	%	M	SD	Assessment
Poor	182	86.7	6.42	3.555	Poor
Fair	20	9.5			
Good	8	3.8			

Total	***210***	***100***			

F= Frequency, **%**= Percentage, **M**= Mean for total score, **SD**= Standard Deviation for total score
Poor= 0-8, Fair= 8.1-16, Good= 16.1-24.

Table 2 exhibits that patients with CVD have poor level of knowledge about warfarin therapy among 86.7% of them (M±SD= 6.42 ± 3.555).

Table 3. Relationships between Patients' Knowledge about Warfarin Therapy and their Sociodemographic characteristics (N=210)

Variables		**Knowledge**				**Relationship**	
		Poor	**Fair**	**Good**	**Total**		
Age (year)	Less than 20 years	3	0	0	3		
	20 –30 years	15	1	1	17	r_S **= .031**	***P-value= .658***
	30 –40 years	19	1	0	20		
	40 –50 years	49	8	1	58		
	50 –60 years	66	6	2	74		
	60 years and older	30	4	4	38		
Sex	Male	73	9	5	87	r^* **= - .146**	***P-value= .035***
	Female	109	11	3	123		
Marital status	Unmarried	11	0	0	11		
	Married	162	20	8	190	r_S **= .074**	***P-value= .286***
	Divorced	3	0	0	3		
	Widowed/er	6	0	0	6		
Residency	Rural	11	0	0	11	r_S **= .075**	***P-value= .277***
	Urban	162	20	8	190		
	Suburban	9	0	0	9		
Level of education	Read and write	52	3	0	55		
	Primary school	74	6	0	80		
	Intermediate school	35	2	0	37	r_S **= .254**	***P-value= .001***
	Preparatory school	19	2	0	21		
	Diploma	1	4	3	8		
	Bachelor	1	3	5	9		
Occupation	Jobless/housewife	125	7	2	134	r_S **= .133**	***P-value= .054***
	Employee	16	6	4	26		
	Retired	20	7	2	29		
	Free works	21	0	0	21		
Monthly income	Insufficient	139	12	2	153	r_S **= .270**	**P-value= .001**
	Barely sufficient	40	1	3	44		
	Sufficient	3	7	3	13		

P-value= .001, **rs** = Spearman correlation coefficient, **r***= Point Bi-serial Correlation.

Table 3 indicates that there is reverse significant relationship between patients' knowledge and their sex at p-value= .035, whereas there are significant positive relationship between patients' knowledge and their level of education and monthly income at p-values= .001 and 0.001, respectively.

Discussion

The study's findings showed that the majority of the study group's age range, between 50-<60 years old, the highest percentage of participants. (35.2%), per age group. This finding is supported by the study, which was conducted in Egypt with

patients the majority of patients were age average from 50-<60 years old. (76%) per age group. [14]

Regarding to gender, the study's findings showed that 58.6% of the study group's participants were female. According to the study's findings, this result is agreed the study carried out in Vietnam, 66.7% of patients were female. [15]

For level of education, the study results presented that majority of sample were primary school (38.1%). This result is agreed the study is carried-out in China the majority of patients were Primary School 74.47% [6] .

For the occupational status, the study finding showed that majority of sample (63.8%) were worker. this result is agreed the study is carried-out in Iran, the majority of patients were Self employed 70.4% [16]

As regards marital status, the study found that most patients were married, and they are accounted (90.5%). this result is agreed with the study carried-out in Indonesia stated that the majority of patients were married 89,19% [17] .

As for as residency , the study found that most patients were from urban, and they are accounted (90.5). This result is agreed the study carried-out in Saudi Arabia revealed that the majority of patients were from urban areas 83.7%. [18]

Regarding Monthly income, the study finding reported that majority of participants were Insufficient income (72.9%). this result was agreed the study is conducted in Al-Najaf City, the majority of patient's low income [19].

The study's findings showed that the overall assessment of patients' knowledge in the study are showing poor level of knowledge. This result is agreed with studies carried out in Egypt, and Malaysia reported that level of the knowledge for patients with cardiovascular disease for medication was low [14, 20]. There are many reasons to justify the gaps in participants' knowledge documented in this clinic.

The most important factor is the absence of standardized health education program. Another factor contributing to less knowledge is the short time devoted to each patient and patient may be can't to routine visited to cardiac care center or to the hospitals to achieved all information about using warfarin therapy in addition to that the most participants was primary school.

The study indicates a significant positive relationship between the participants level of knowledge and level of education. This result is in agreement with study conducted in Egypt revealed that there is significant positive relationship between the level of participants knowledge about warfarin therapy and level of education. [14]

The results of this study reported a significant relationship between monthly income and knowledge about warfarin therapy among participants with CVD. This finding agreement with study conducted in Malaysia reported a significant relationship between monthly income and knowledge about warfarin therapy. [21]

Conclusion

The study concludes that there was a poor level of knowledge regarding warfarin therapy among patients with cardiovascular disease; and the level of education and the monthly income were significantly relationships among patient's knowledge

Recommendations

This study recommending to educated Cardiac patients about warfarin therapy to play an active role in their treatment. Designing educational programs regarding cardiac medications such as warfarin therapy for increasing patient's knowledge.

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