

Federal University of Rio de Janeiro State

Journal of Research
Fundamental Care OnlineISSN 2175-5361
DOI: 10.9789/2175-5361

RESEARCH

Conhecimento de pacientes em acompanhamento ambulatorial sobre a terapia de anticoagulação oral

Knowledge patients receiving outpatient treatment on oral anticoagulation therapy

Conocimiento de pacientes en control ambulatorio sobre la terapia de anticoagulación oral

Thaís Remígio Figueirêdo ¹, Monique Oliveira do Nascimento ², Maria Mariana Barros Melo da Silveira ³, Christefany Régia Braz Costa ⁴, Andrey Vieira de Queiroga ⁵, Simone Maria Muniz da Silva Bezerra ⁶

ABSTRACT

Objective: To assess the knowledge of patients receiving outpatient treatment on oral anticoagulant therapy. **Method:** Cross-sectional study with a quantitative approach, performed at the Emergency Hospital of Pernambuco (PROCAPE) with 100 individuals. We used specific instrument of 10 questions. Answers to scores assigned subsequently classified as insufficient knowledge, regular and adequate knowledge after cutoff. The study was approved by the Research Ethics Committee, CAAE nº30622114.2.0000.5192. **Results:** Only 39% of subjects had adequate knowledge about treatment. There was statistical significance in pools of knowledge with sex ($p = 0.042$), age ($p = 0.015$), years of education ($p = 0.021$) and average time of outpatient follow-up ($p = 0.010$). **Conclusion:** The prevalence of inadequate knowledge (61%) demonstrate the need to implement educational strategies that promote the understanding of the treatment, stimulating drug adherence and reducing possible complications. **Descriptors:** Anticoagulants, Nursing, Knowledge.

RESUMO

Objetivo: Verificar o conhecimento de pacientes em acompanhamento ambulatorial sobre a terapia com anticoagulantes orais. **Método:** Estudo de corte transversal, com abordagem quantitativa, realizado no Pronto-Socorro Cardiológico de Pernambuco (PROCAPE) com 100 indivíduos. Utilizou-se instrumento específico de 10 questões. Foram atribuídas pontuações às respostas, posteriormente classificadas como Conhecimento insuficiente, Conhecimento regular e Conhecimento adequado, segundo ponto de corte. A pesquisa foi aprovada por Comitê de Ética em Pesquisa, CAAE nº 30622114.2.0000.5192. **Resultados:** Apenas 39% dos indivíduos apresentaram conhecimento adequado sobre o tratamento. Houve significância estatística nas associações do conhecimento com sexo ($p=0,042$), idade ($p= 0,015$), anos de estudo ($p=0,021$) e tempo médio de acompanhamento ambulatorial ($p=0,010$). **Conclusão:** A predominância de conhecimento não adequado (61%) demonstra a necessidade de implementação de estratégias educativas que favoreçam a compreensão sobre o tratamento, estimulando a adesão farmacológica e reduzindo eventuais complicações. **Descritores:** Anticoagulantes, Enfermagem, Conhecimento.

RESUMEN

Objetivo: Verificar el conocimiento de pacientes en control ambulatorio sobre la terapia con anticoagulantes orales. **Método:** Estudio de corte transversal, con enfoque cuantitativo, realizado en el Pronto Socorro Cardiológico de Pernambuco (PROCAPE) con 100 individuos. Se utilizó instrumento específico de 10 cuestiones. Fueron atribuidas puntuaciones a las respuestas, posteriormente clasificadas como Conocimiento insuficiente, Conocimiento regular y Conocimiento adecuado, según el punto de corte. La investigación fue aprobada por el Comité de Ética en Investigación, CAAE nº 30622114.2.0000.5192. **Resultados:** Apenas 39% de los individuos presentaron conocimiento adecuado sobre el tratamiento. Hubo significancia estadística en las asociaciones del conocimiento con sexo ($p=0,042$), edad ($p= 0,015$), años de estudio ($p=0,021$) el tiempo medio de control ambulatorio ($p=0,010$). **Conclusión:** La predominancia de conocimiento no adecuado (61%) demuestra la necesidad de implementación de estrategias educativas que favorezcan la comprensión sobre el tratamiento, estimulando la adhesión farmacológica y reduciendo eventuales complicaciones. **Descritores:** Anticoagulantes, Enfermería, Conocimiento.

¹ Nurse. Specialist in Cardiology by the Pronto Socorro Cardiológico de Pernambuco (PROCAPE) [Cardiac Emergency Hospital of Pernambuco].. Master's Graduate Associate Program UPE/UEPB. ² Undergraduate Nursing School of Nursing Nossa Senhora das Graças - UPE. ³ Nurse. Nursing resident in Cardiology at the Pronto Socorro Cardiológico de Pernambuco (PROCAPE) [Cardiac Emergency Hospital of Pernambuco]. ⁴ Nurse. Nursing resident in Cardiology at the Pronto Socorro Cardiológico de Pernambuco (PROCAPE) [Cardiac Emergency Hospital of Pernambuco]. ⁵ Nurse. Specialist in Cardiology by the Pronto Socorro Cardiológico de Pernambuco (PROCAPE) [Cardiac Emergency Hospital of Pernambuco], Master's Graduate Associate Program UPE/UEPB. ⁶ Nurse. Post-PhD by the Ribeirão Preto Nursing School - EERP-USP. Professor of the permanent staff of the Graduate Program Associate UPE / UEPB, master's and doctoral level. Associate Professor of Universidade de Pernambuco and Universidade Federal de Pernambuco.

INTRODUCTION

In recent years, there has been observed a significant increase of the clinical use of anticoagulant agents in the treatment of cardiovascular diseases. These drugs are used aiming at the time extension of the physiological process of blood coagulation, being especially indicated for prevention and treatment of thromboembolic phenomena arising from various diseases.

The main indications for the use of oral anticoagulants are atrial fibrillation, deep vein thrombosis, pulmonary thromboembolism and the use of cardiac valve prostheses.^{1,2} The main class of drugs used for oral anticoagulation is the vitamin K antagonist, represented by sodium Warfarin and Phenprocoumon, both approved for clinical use in Brazil, whose mechanism of action is based on inhibition of hepatic enzyme systems necessary for the formation of coagulation factors.¹

Warfarin, the most frequently used, is a drug unwieldy for dosing adjustment since, it has toxic concentrations very close to therapeutic doses.³ Genetic and environmental factors may directly influence the anticoagulant effect of the drug, explaining the complexity and difficulty in management of treatment, which requires strict control by users of medications and responsible health professionals.^{1,3}

The laboratory control is usually performed on an outpatient level, upon evaluation of partial thromboplastin time (TPP) or thrombin time (PT), expressed in International Normalized Ratio (INR), which reflects the intensity of the blood coagulation process, whose average values are between 2.0 and 3.0, with risk of thromboembolic complications in the presence of lower values and risk of bleeding if present higher values.⁴⁻⁵

The study by Campos, Andrade e Silva, evidenced that even the existence of a specialized clinic, with fast service guaranteed by a multidisciplinary team with adequate stimulation to treatment adherence, often, there are still major difficulties in achieving maintaining optimal levels of anticoagulation control.⁶

In addition to genetic and environmental factors, cited above, it is also considered important in the difficulty of control and management of the treatment, educational and socioeconomic status of the population using oral anticoagulants, which influence mainly on knowledge, understanding and adherence to the proposed treatment.³

In this perspective, from the clinical practice of monitoring by a multidisciplinary team, there has been a necessity to know the profile of the population treated in the health facility in order to identify their needs and possible interventions, with the main objective of

this research to investigate the knowledge of patients before the treatment with oral anticoagulants in specialized outpatient follow-up.

METHOD

The research is a cross-sectional study with a quantitative approach, performed at the Cardiac Emergency Room of Pernambuco Professor Luiz Tavares (PROCAPE), university hospital of reference in cardiology for the North and Northeast regions, between August 2014 to January 2015. 100 patients were interviewed out of which, adults, volunteers and randomly chosen, as an outpatient for laboratory control of INR and dose adjustment of the oral anticoagulant usage.

Data were obtained by applying one sociodemographic and clinical questionnaire and a specific instrument for the assessment of knowledge of patients using oral anticoagulants. The latter was adapted from a study conducted in England and duly translated into Portuguese and submitted to face validation study by Rocha and contributors.⁷

The specific instrument for the assessment of knowledge consists of 11 questions, where the first ten assess the knowledge itself and the last, the degree of patient satisfaction with the information received at the beginning of treatment. The subjects covered in the questionnaire deal with the oral anticoagulant name, its function, motive for using it, the prescribed dosage of medication, its side effects, the therapeutic range of INR, among others. Response options to the questions are know, partially know or do not know, being assigned scores a point, half a point and zero, respectively.⁷

The obtained scores were classified according to the following cutoff:⁷ insufficient knowledge (scores ≤ 4); Regular knowledge (scores > 4 e ≤ 8); and adequate knowledge (scores > 8).

Data were stored and analyzed using descriptive and inferential statistics tools, using the Statistical Package for Social Sciences (SPSS) 20.0. For socio-demographic, economic and clinical variables were performed descriptive analyzes of single frequency for nominal variables and position analyzes as mean and median, and dispersion, as the standard deviation for continuous variables. The chi-square test was applied in order to study the dependence between two variables, always considering the statistical significance to $p < 0.05$.

The research was appreciated by the Ethics Committee on Research Hospital Complex of the University of Pernambuco and obtained the Certificate Presentation to Ethics Assessment (CAAE) n°30622114.2.0000.5192.

RESULTS AND DISCUSSION

In order to support and ensure proper planning of patient care using oral anticoagulants is possible and necessary that the nursing professional, as a member of the multidisciplinary team responsible for these users, seek to know the profile of these individuals in their care, as well as the impact of information and knowledge available to them on therapy in question.^{8,9}

The population studied was characterized by a female majority (62%), brown (53%), married (51%), coming from Recife and metropolitan area (72%), with average age of 53.69 (± 14.16) years. Regarding the socio-economic profile, 50% were retired or pensioners, 73% had income up to 1 minimum wage and 65% had schooling up to 9 years of study.

The higher female representation, found in other Brazilian studies on anticoagulation^{7,10}, is a continuing and naturalized behavioral practice, based on a cultural perspective, in which women make greater use of health services than men.¹¹⁻² However, Dantas and colleagues identified the male as majority in a study on the evaluation of control of INR in patients monitored in specific outpatients.³

Regarding to age, education and occupation, the results of this study are similar to national surveys performed⁵⁻⁶, with patients taking anticoagulants in specialized outpatient follow-up. However, the context of European countries in relation to age, some studies show that the average age of patients being treated with anticoagulants is greater than 70 years¹³⁻⁴, which is due mainly to the higher life expectancy in developed countries.

Another factor that can be attributed to age differences between national and international realities is the high prevalence of "Poverty diseases"¹⁵ in Brazilian population, among which are Chagas disease and rheumatic fever, responsible for high rates of impairment in children, adolescents and young adults and that occur with chronic forms whose treatment includes the need for anticoagulation medications, such as Atrial Fibrillation and Rheumatic carditis, respectively.

Regarding the educational level, in the European studies¹³⁻⁴, the average was under 10 years of study, showing no major differences with the level of education found in this study, though, it is relevant to compare the quality of education offer to population in both realities. Note also the high number of retirees in this study, demonstrating the impact of cardiovascular diseases on the health and quality of life, responsible for high number of life years with lost quality due to disease (Disability Adjusted Life Years - DALYs).¹⁶⁻⁷

The main indications for the use of oral anticoagulants were atrial fibrillation (50%) and the heart valve defect (50%), 27% of the interviewed carriers mechanical valve prosthesis and 18% of biological valve prostheses. All the interviewed were taking Warfarin.

The prevalence of warfarin as an anticoagulant used by patients interviewed and most of the indications for use of the medication by FA and replacement heart valves for valve prostheses, corroborates studies conducted over the past 5 years.^{5,7-10}

In the present study it was also observed that the main comorbidities presented by patients on anticoagulants were systemic hypertension (SH) (80%), dyslipidemia (30%), obesity (20%) and diabetes mellitus (16%), found consistent with studies by Pelegrino and contributors, and Clarksmith and contributors, in which stood out hypertension, arrhythmias and coronary artery disease, and hypertension, diabetes mellitus and arrhythmia, respectively.^{5,13}

Hemorrhagic and thromboembolic complications account for a very present reality in anticoagulated individuals, especially with warfarin, which has narrow therapeutic band.¹⁸ In the present study the episodes of bleeding were the most frequently reported (28%) compared to thromboembolic events (13 %) and not different from that found in the study of Avila and contributors, which was evident in the occurrence of bleeding events in 27.5% of the interviewed.²

Approximately 62% of the interviewed were using oral anticoagulants for a shorter or equal duration to 1 year. The mean time of outpatient follow-up was 170 days (\pm 128.63). Spending on transportation to the place of outpatient treatment and medication were investigated, mentioned by 57% and 91% of respondents, respectively.

Regarding the RNI, the values obtained from the realization of the laboratory examination on monitoring and interview were observed, with 54% of the interviewed with values above or below recommended as therapeutic range.

When evaluated on the knowledge of aspects related to the use of oral anticoagulants, it observed that most of the interviewed knew correctly the name of the oral anticoagulant use (94%), treatment time (86%) and the dose (74 %) (Table 1). 67% of patients reported satisfaction with the guidelines received at the beginning of treatment, however, only 39% had knowledge of indexes on the therapy which are appropriate (Table 2).

Table 1. Knowledge about the use of oral anticoagulants of survey participants (n=100). Recife (PE), Brasil, 2015.

QUESTIONS	Know (%)	Partially know (%)	Do not know (%)
1. What is the name of the anticoagulant you are taking?	94	5	1
2. Do you know what this medicine is for?	67	22	11
3. Do you know why you are taking this medicine?	70	16	14
4. Can you tell which are the side effects of this	38	18	44

anticoagulant? (at least 1)			
5. What ACO que você está tomando agora? Tell.	74	13	13
6. How long are you taking ACO?	86	13	1
7. What may happen if you don't take the ACO?	65	16	19
8. Which is RNI/INR target?	48	25	27
9. Do you know which factors may interfere in the RNI/INR level? (at least 1)	49	17	34
10. Do you know which care you have to take for being using the ACO? (at least 2)	49	27	24

Table 2. Knowledge rating on the use of oral anticoagulants according to pre-established cut-off point . Recife (PE), Brasil, 2015.

Variável	(N)	(%)
Insufficient knowledge	16	16,0
Regular knowledge	45	45,0
Appropriate knowledge	39	39,0
Total	100	100,0

The total score obtained by patients in response to knowledge questionnaire resulted in two clusters. The insufficient and regular knowledge scores were considered not proper knowledge, represented by 61% of individuals who obtained from zero to eight points. The second group comprised 39% of patients who achieved a score above 8, featuring knowledge considered appropriate.

We therefore evaluated other factors related to the subject matter, such as gender, age, income, education, therapeutic range of INR, complications, treatment time, satisfaction with the guidelines received at the beginning of treatment and follow-up on an outpatient basis anticoagulation (Table 3). Among the associated variables, from the

application of the chi-square test was no statistical significance related to gender ($p = 0.042$), age ($p = 0.015$), education ($p = 0.021$), satisfaction with the guidelines received ($p = 0.010$) and time of outpatient follow-up ($p = 0.010$).

Table 3. Analysis of factors related to knowledge of anticoagulation therapy. Recife-PE, Brasil, 2015.

Variable		Appropriate knowledge 39 (39%) n (%)	Not appropriate knowledge 61 (61%) n (%)	p*
Gender	Feminino	29 (74,4)	33 (54,1)	0,042
	Masculino	10 (25,6)	28 (45,9)	
Age	< 60 anos	31 (79,5)	34 (55,7)	0,015
	≥ 60 anos	8 (20,5)	27 (44,3)	
Income	Até 1 salário mín.	27 (69,2)	46 (75,4)	0,497
	> 1 salário mín.	12 (30,8)	15 (24,6)	
Education	Até 9 anos	20 (51,3)	45 (73,8)	0,021
	> 9 anos	19 (48,7)	16 (26,2)	
Proper adjustment	Sim	22 (56,4)	24 (39,3)	0,095
	Não	17 (43,6)	36 (60,7)	
Treatment time	Até 6 meses	10 (25,6)	24 (39,3)	0,158
	> 6 meses	29 (74,4)	37 (60,7)	
Treatment follow up	Até 6 meses	16 (41)	41 (67,2)	0,010
	> 6 meses	23 (59)	20 (32,8)	
Satisfaction with guidelines	Sim	32 (82,1)	35 (57,4)	0,010
	Não	7 (17,9)	26 (42,6)	

* Chi-square.

Regarding the knowledge of patients on oral anticoagulation therapy, this study found no adequate knowledge of the majority of respondents, which leads to reflection on the percentage of individuals with inadequate adjustment of doses (54%) determined by the value of INR outside the recommended therapeutic range, although not statistically significant ($p = 0.095$). Studies show that the low level of knowledge about the anticoagulant therapy has a direct impact on treatment adherence and reduction of potential adverse effects.¹³⁻⁹

A German study in 2014 identified knowledge gaps considered relevant on the use of anticoagulants, directly affecting the safety and efficacy of treatment.¹⁴ In the study of Rocha, similarly, most patients had limited knowledge on oral anticoagulation therapy.⁷

Evidence has shown that the incipient knowledge on oral anticoagulation therapy reflected in the lower adherence and drug therapy and anticoagulation result in instability, increased complications inherent in the treatment and in poor quality of customer life.²⁰

The associations between variables, performed in this study, the duration of treatment with warfarin and the score obtained from the application of the instrument was not statistically significant, similar to the results from the study of Rocha.⁷ However were

associated as predictors of adequate knowledge on the use of anticoagulants, women, satisfaction with the guidelines received at the beginning of treatment, the age group below 60 years of age and time of study longer than nine years, the latter two also evidenced by Chenot and collaborators in 2014¹⁴

It is noteworthy that although the oral anticoagulation time was not a relevant factor to sufficient knowledge, the follow-up in specialized clinic where the study was conducted, was related positively to improvements in knowledge, with a satisfactory level of significance ($p = 0.010$). This shows the great importance of multidisciplinary and interdisciplinary follow-up of patients with educational interventions on the treatment capable of improving the perception of patients in the treatment and control of INR.¹⁸

CONCLUSION

This study demonstrated that most patients did not show adequate knowledge about treatment with oral anticoagulants, and such a finding is closely related to the shorter follow-up in multi-specific outpatient anticoagulation.

It should be noted, however, that despite the guidelines provided by the multidisciplinary team, it is very difficult to understand the aspects related to the use of oral anticoagulants and the care required by individuals in specialized outpatient follow-up, related significantly to the level of education .

In this way, there is the need for greater emphasis on the educational process of these individuals, seeking strategies to understanding and assimilation of care required to the use of oral anticoagulants, to ensure improvements related to the reduction of potential complications and higher adoption rates to therapy.

For this purpose, it is observed still need to conduct further research to investigate the impact of knowledge on the use of oral anticoagulants in the treatment adherence of patients to support the implementation of the necessary educational strategies to be developed by nursing professionals, as member of the multidisciplinary team in order to reflect best clinical outcomes.

REFERENCES

1. Leiria TLL, Pellanda L; Miglioranza MH, Sant'Anna RT, Becker LS, Magalhães E et al. Varfarina e femprocumona: experiência de um ambulatório de anticoagulação. *Arq Bras Cardiol (Online) [Internet]*. 2010 jan [Cited 2014 Mar 12]; 94(1):41-5. Available from: <http://www.scielo.br/pdf/abc/v94n1/08.pdf>
2. Ávila CW, Aliti GB, Feijó MKF, Rabelo ER. Adesão farmacológica ao anticoagulante oral e os fatores que influenciam na estabilidade do índice de normatização internacional. *Rev Latino-Am Enfermagem (Online) [Internet]*. 2011 jan/feb [Cited 2014 Mar 8]; 19(01): 08 telas. Available from: http://www.scielo.br/pdf/rlae/v19n1/pt_04.pdf
3. Dantas AG, Cardoso JN, Cardoso CMR, Curiati MNC, Lima MV, Aranha NS et al. Controle da Anticoagulação com Varfarina Realizada em Ambulatório Especializado. *Rev Bras Cardiol (Online) [Internet]*. 2013 sept/Oct [Cited 2014 May 20]; 26(5):369-73. Available from: http://www.rbconline.org.br/wp-content/uploads/RBC_26_5_Art_95_Andr%C3%A9_Dantas.pdf
4. Pelegrino FM. Avaliação da qualidade de vida relacionada à saúde, adesão ao tratamento medicamentoso e autoeficácia de indivíduos submetidos a um programa educacional após iniciarem o uso de anticoagulante oral. Tese (Doutorado) - Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, São Paulo, 2013: 101f.
5. Pelegrino FM, Dantas RAS, Corbi ISA, Carvalho ARS. Perfil sócio demográfico e clínico de pacientes em uso de anticoagulantes orais. *Rev Gaúcha Enferm (Online) [Internet]*. 2010 mar [Cited 2014 Mar 8]; 31(1):123-8. Available from: <http://www.scielo.br/pdf/rgenf/v31n1/a17v31n1.pdf>
6. Campos NLKL, Andrade RR, Silva MAM. Anticoagulação oral em portadores de próteses valvares cardíacas mecânicas: experiência de dez anos. *Rev Bras Cir Cardiovasc (Online) [Internet]*. 2010 oct/dec [Cited 2014 Apr 17]; 25(4):457-65. Available from: <http://www.scielo.br/pdf/rbccv/v25n4/v25n4a08.pdf>
7. Rocha HT, Rabelo ER, Alite G, Souza EN. Conhecimento de pacientes portadores de prótese valvar mecânica sobre a terapia de anticoagulação oral crônica. *Rev Latino-Am Enfermagem (Online) [Internet]*. 2010 july/aug [Cited 2014 Mar 12]; 18(04): 07 telas. Available from: http://www.scielo.br/pdf/rlae/v18n4/pt_06.pdf
8. Carvalho ARS, Cioli MA, Tiu F, Rossi LA, Dantas RAS. Anticoagulação oral: impacto da terapia na qualidade de vida relacionada à saúde ao longo de seis meses. *Rev Latino-Am Enfermagem (Online) [Internet]*. 2013 jan/fev [Cited 2015 Jan 9]; 21(spec): 08 telas. Available from: http://www.scielo.br/pdf/rlae/v21nspe/pt_14.pdf
9. Corbi, I.S.A., Dantas, R.A.S., Pelegrino, F.M., Carvalho, A.R.S. Qualidade de vida relacionada à saúde de pacientes em uso de anticoagulação oral. *Rev Latino-Am Enfermagem (Online) [Internet]*. 2011 July/Aug [Cited 2014 Mar 12]; 19(04): 09 telas. Available from: http://www.scielo.br/pdf/rlae/v19n4/pt_03.pdf
10. Almeida GQ, Noblat LACB, Passos LCS, Nascimento HF. Quality of Life analysis of patients in chronic use of oral anticoagulant: an observational study. *Health Qual Life Outcomes (Online) [Internet]*. 2011 Oct [Cited 2015 Jan 9]; 9(91). Available from: <http://www.hqlo.com/content/pdf/1477-7525-9-91.pdf>

11. Levorato CD, Mello LM, Silva AS, Nunes AA. Fatores associados à procura por serviços de saúde numa perspectiva relacional de gênero. *Ciência & Saúde Coletiva (Online)* [Internet]. 2014 apr [Cited 2015 Feb 20]; 19 (4): 1263-74. Available from: <http://www.scielo.br/pdf/csc/v19n4/1413-8123-csc-19-04-01263.pdf>
12. Carvalho FPB, Silva SKN, Oliveira LC, Fernandes ACL, Solano LC, Barreto ELF. Conhecimento acerca da política nacional de atenção integral à saúde do homem na estratégia de saúde da família. *Rev APS (Online)* [Internet]. 2013 oct/dec [Cited 2015 Feb 20]; 16(4): 386-92. Available from: <http://aps.ufjf.emnuvens.com.br/aps/article/view/1977/761>
13. Clarkesmith DE, Pattison HM, Lip GYH, Lane DA. Educational Intervention Improves Anticoagulation Control in Atrial Fibrillation Patients: The TREAT Randomised Trial. *Plos One (Online)* [Internet]. 2013 Sept [Cited 2014 Mar 23]; 8(9): 1-10. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3767671/pdf/pone.0074037.pdf>
14. Chenot JF, Hua TD, Abed MA, Schneider-Rudt H, Friede T, Schneider S, Vormfelde SV. Safety relevant knowledge of orally anticoagulated patients without self-monitoring: a baseline survey in primary care. *BMC Family Practice (Online)* [Internet]. 2014 May [Cited 2014 July 17];15:104. Available from: <http://www.biomedcentral.com/content/pdf/1471-2296-15-104.pdf>
15. Brasil, Ministério da Saúde. Fiocruz. Embasamento técnico e sugestões para ações de controle das doenças da pobreza no Programa de Erradicação da Pobreza Extrema no Brasil. Nota técnica n.º 1/2011/ioc-fiocruz/diretoria. 2011.
16. Ducan BB. et al. Doenças crônicas não transmissíveis no Brasil: prioridade para enfrentamento e investigação. *Rev Saúde Pública (Online)* [Internet]. 2012 dec [Cited 2015 Feb 22]; 46(Supl):126-34. Available from: <http://www.scielo.br/pdf/rsp/v46s1/17.pdf>
17. Schramm JMA, Oliveira AF, Leite IC, Valente JG, Gadelha AMJ, Portela MC, et al. Transição epidemiológica e o estudo de carga de doenças no Brasil. *Ciência & Saúde Coletiva (Online)* [Internet]. 2004 [Cited 2015 Feb 22]; 9(4):897-908. Available from: <http://www.scielo.br/pdf/csc/v9n4/a11v9n4>
18. Winans AR, Rudd KM, Triller D. Assessing anticoagulation knowledge in patients new to warfarin therapy. *Ann Pharmacother.* 2010 July-Aug; 44(7-8): 1152-7.
19. Hua1 TD, Vormfelde SV, Abed MA, Schneider-Rudt H, Sobotta P, Friede T et al. Practice nursed-based, individual and videoassisted patient education in oral anticoagulation - Protocol of a cluster-randomized controlled trial. *BMC Family Practice (Online)* [Internet]. 2011 Apr [Cited 2014 Dec 8]; 12(17): 5 telas. Available from: <http://www.biomedcentral.com/content/pdf/1471-2296-12-17.pdf>
20. Wang Y, Kong MC, Lee LH, Ng HJ, Ko Y. Knowledge, satisfaction, and concerns regarding warfarin therapy and their association with warfarin adherence and anticoagulation control. *Thromb Res.* 2014 Apr; 133(4): 550-4.

Received on: 12/08/2015
Required for review: No
Approved on: 02/09/2015
Published on: 07/01/2016

Contact of the corresponding author:
Thaís Remígio Figueirêdo
Rua Arnobio Marques, Nº 310, Santo Amaro, Recife- PE
CEP: 50100-130. E-mail: tharemigio@gmail.com