NURSING DIAGNOSES AMONG USERS OF ORAL ANTICOAGULANTS IN OUTPATIENT FOLLOW-UP

DIAGNÓSTICOS DE ENFERMAGEM ENTRE USUÁRIOS DE ANTICOAGULANTE ORAL ACOMPANHADOS EM AMBULATÓRIO

DIAGNÓSTICOS DE ENFERMERÍA ENTRE USUARIOS DE ANTICOAGULANTE ORAL ACOMPANÑADOS EN AMBULATORIO

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Objective: to identify the sociodemographic and clinical profile, as well as the main nursing diagnoses among users of oral anticoagulants in outpatient follow-up. Method: it was a descriptive cross-sectional study with a quantitative approach, conducted with 128 eligible users in outpatient follow-up at a public university hospital in Paraná, Brazil. Sociodemographic and clinical variables were collected in nursing consultations and documentary sources, and the nursing diagnoses were identified according to NANDA International taxonomy. Results: the sample was composed predominantly of elderly people; married; with low schooling; with indication of oral anticoagulation for atrial fibrillation and deep venous thrombosis; and adequate average clotting time expressed by the International Normalized Ratio. The five nursing diagnoses listed belonged to the classes of Cardiovascular/Pulmonary responses; Infection; Ingestion; and Health management. Conclusion: the nursing diagnoses identified combine with the clinical profile of the users of oral anticoagulants in outpatient follow-up, thus reflecting a scenario more focused on organic-functional issues, although the need for better control of one’s own health and domain of health promotion have emerged in a lesser extent.


Objetivo: identificar o perfil sociodemográfico e clínico, bem como principais diagnósticos de enfermagem entre usuários de anticoagulantes de uso oral acompanhados em ambulatório. Método: pesquisa descritiva, transversal de abordagem quantitativa. Realizada com 128 usuários elegíveis acompanhados em ambulatório de hospital universitário público do Paraná, Brasil. Foram coletadas, em consulta de enfermagem e fonte documental,
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Introduction

Oral anticoagulants (OAC), called anti-vitamin K, also known as coumarin agents, can reduce blood clotting by interfering with hemostasis. Therefore, they can be used in cases of endothelial lesion, stopping the bleeding (1). The main vitamin K antagonists approved for clinical use in Brazil include warfarin sodium and phenprocoumon, which are indicated in diseases/situations of clinical and epidemiological importance in conditions such as atrial fibrillation (AF), deep vein thrombosis (DVT), pulmonary embolism, thrombophilia, prevention of systemic arterial embolism in cardiac valve users, stroke, and recurrent infarction (2).

The use of OAC should be extremely careful, since this decision must consider the benefits for preventing embolism and the potential risks of hemorrhagic induction (1-2). In this context, strict laboratory monitoring is required, with anticoagulant dose adjustment, using laboratory tests such as the Prothrombin Time (PT), expressed by the International Normalized Ratio (INR) (2).

Anti-vitamin K anticoagulants have some limitations for their use, such as the narrow therapeutic window, unpredictability of their pharmacodynamics and pharmacokinetics, and individual, genetic, and environmental factors (2-3). In this perspective, the presence of an interdisciplinary team capable of promoting and maintaining the health of individuals using oral anticoagulants is essential, including those in outpatient follow-up, considering the need of controlling the injuries, preventing damage, and promoting quality of life (3).

Among the health team members, the nurses’ role should be highlighted, since these professionals historically provide a management focused on the viability of rational care strategies (4). In care management, the importance of the Nursing Care Systematization (NCS) emerges, which can be understood as a working tool that improves the quality of care...
provided to individuals through the planning, implementation, and assessment of actions in the interest of the nursing team. In addition to direct care, NCS is fundamental to direct actions of people management, an undeniable factor in the managerial dimension of the nurses’ work.

Among the elements of NCS, the Nursing Process (NP) enables the development of a scientific method at work for the nursing care management. Therefore, the five-step NP (data collection/nursing history, nursing diagnosis, planning, implementation, and evaluation of nursing interventions) is a systematic work method that guides professional nursing care. Identifying nursing diagnoses (ND) constitutes a process of clinical judgment. Therefore, ND structure knowledge and seek to define the role and domain of nursing, while assisting in the evaluation of the care provided, directing care, promoting teaching, establishing the functions of the nursing team, besides stimulating the participation of users in their own treatment.

Among the ways to formulate and name nursing diagnoses, a system widely used in clinical practice worldwide was developed by the North-American Nursing Diagnosis Association (NANDA-International), being adopted by the American Nurses Association as the official methodology of diagnoses taxonomy for the United States since the 1980s.

Knowing the health profile and the nursing diagnoses of a specific clientele favors the construction of a practice focused on their real needs. In other words, combining the knowledge of the characteristics of a certain population with the diagnostic identification tends to be a means of nurses to rationalize the care process in a supported way. Nevertheless, the knowledge that comprises the care systematization in this peculiar type of clientele is still incipient, with many gaps to bridge. Based on the abovementioned considerations, the following question was applied: Which are the main nursing diagnoses identified among users in oral anticoagulation treatment in outpatient follow-up?

To answer this question, this study aimed to identify the sociodemographic and clinical profile, as well as the main nursing diagnoses among users of oral anticoagulants in outpatient follow-up. Therefore, it is expected to provide subsidies for the qualification of care offered to individuals in this therapeutic modality, contributing to their quality of life and adherence throughout the treatment.

Method

This is a descriptive study with cross-sectional design and quantitative approach. It was developed at an Oral Anticoagulation Clinic of a public university hospital in the state of Paraná, Brazil, with an operational capacity of 210 beds linked exclusively to the Unified Health System (SUS). In turn, the outpatient clinic in study is a reference for the follow-up of patients who were or were not hospitalized, being used to treat users of the most diverse medical, clinical, and surgical specialties, besides including nursing care in all areas.

Study participants were individuals who met the following eligibility criteria: patients with indication to use OAC by any etiology, aged 18 years and older, of both sexes, and attending nursing appointments during the time frame of the study, from February to June 2013. Exclusion criterion concerned the patients without clinical conditions for verbal or motor response to their consent and in the absence of a responsible family member during the nursing consultations. Nonetheless, there was no exclusion for this criterion, because the participation in the study was also conditioned to the consent of each participant or companion, by reading and signing the Free and Informed Consent Term (FICT).

For data collection, an instrument for sociodemographic and clinical characterization of patients was applied, adapted from another version used in studies that also involved patients on oral anticoagulation treatment. This instrument was constructed and validated (face, content, and semantic validity) in previous studies. It contemplated, through an
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The Statistical Package for the Social Sciences (SPSS) version 21.0 was used for data processing and analysis. Tabulated data enabled the descriptive analysis in percentage measures for the categorical variables, and the central tendency (median and mean) and variability (standard deviation) for the continuous variables.

All the ethical precepts required by Resolution no. 466/12 of the National Health Council were respected. Thus, the research project was submitted and approved by the Ethics Committee in Research Involving Human Beings of the Western Paraná State University (Unioeste), under protocol n. 201/2010.

Results

In total, there were 236 people registered in the Oral Anticoagulation Outpatient Clinic. However, 108 did not participate in the study as they did not meet the inclusion criteria, namely: aged under 18 years (n=3); treatment withdrawal (n=4); refusal to participate in the research (n=7); death (n=9); consultation scheduled after the time frame of the research (n=10); follow-up changed to another service (n=14); discharge (n=23); and were not found (n=38).

Given the above, the study had an analyzed sample of 128 participants. Table 1 presents the characterization findings of the sample according to sociodemographic variables of gender, age, marital status, schooling, and occupation.

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>%</th>
<th>Median</th>
<th>Amplitude</th>
<th>Mean (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>66</td>
<td>51.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>62</td>
<td>48.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 40 years</td>
<td>11</td>
<td>8.6</td>
<td>65.5</td>
<td>21-89</td>
<td>62.2 (14.1)</td>
</tr>
<tr>
<td>41 to 59 years</td>
<td>34</td>
<td>26.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 years and older</td>
<td>83</td>
<td>64.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(to be continued)
Regarding clinical data, atrial fibrillation (34.4%) was the main indication for OAC use, followed by deep vein thrombosis (19.5%) and mechanical heart valve prosthesis (17.2%). Sodium warfarin (89.1%) was the most used OAC among study participants, followed by phenprocoumon (10.9%). Other morbidities were identified among the study participants, in addition to the one that indicated the OAC use, thus obtaining an average of 2.9 morbidities, ranging from zero to eight. Systemic arterial hypertension (62.5%) was among the most observed comorbidities, followed by heart failure (28.9%).

As for the clotting time value expressed by the INR, the study participants presented a mean of 2.2 (SD=0.4), ranging from 1.03 to 4.18, with a mean of 40% of the time within the therapeutic limit expected for the Time in Therapeutic Range (TTR) treatment\(^{(1,2)}\).

Among the OAC users, 37 (28.9%) presented complications during the treatment, of which 27 (73%) had a hemorrhagic event and 10 (27%) a thrombotic event. Of these, 23 (18%) needed hospitalization.

About the users who interrupted the OAC therapy (n=35; 27.3%), the main reasons were: the need to undergo invasive procedures (17; 48.6%); presence of some type of complication (7; 20%); self-interruption (7; 20%); and increased INR, although there was no complication verified (4; 11.4%). Of this total, 25 (71.4%) individuals discontinued OAC therapy with medical advice.

Meeting the proposed objective, data obtained in this study allowed the identification of five nursing diagnoses, distributed in four domains and four classes of NANDA-I taxonomy II\(^{(11)}\). In this regard, Table 2 presents the findings related to nursing diagnoses and their respective domains and classes in descending order of frequency.
Table 2 – Nursing diagnoses, domains, and diagnostic classes according to NANDA-International Taxonomy II among users of oral anticoagulants in outpatient follow-up. Cascavel, Paraná, Brazil – 2013. (n=128)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Domain</th>
<th>Class</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk for bleeding</td>
<td>Domain 11: Safety/Protection</td>
<td>Physical injury</td>
<td>128</td>
<td>100</td>
</tr>
<tr>
<td>Risk for infection</td>
<td>Domain 11: Safety/Protection</td>
<td>Infection</td>
<td>128</td>
<td>100</td>
</tr>
<tr>
<td>Imbalanced nutrition: more than body requirements</td>
<td>Domain 2: Nutrition</td>
<td>Ingestion</td>
<td>90</td>
<td>70.3</td>
</tr>
<tr>
<td>Ineffective peripheral tissue perfusion</td>
<td>Domain 4: Activity/Rest</td>
<td>Cardiovascular/pulmonary responses</td>
<td>43</td>
<td>33.6</td>
</tr>
<tr>
<td>Ineffective health management</td>
<td>Domain 1: Health Promotion</td>
<td>Health management</td>
<td>7</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Created by the authors.

Discussion

Regarding the sociodemographic profile of the subjects, it can be stated that they corroborated the results of other studies involving the same type of population\(^\text{14-16}\), with a slight predominance of females (51.6%); greater number of patients aged 60 years and older; married or living in consensual union (64.8%); predominance of retirees or pensioners (43%); and low schooling (45.3%).

Schooling level is a factor that may hinder the individuals’ understanding of the established drug therapy, such as the use of OAC\(^15\). The study demonstrated that most of the individuals in this study had low schooling, a common characteristic in health care institutions that mostly attend to the SUS\(^12\), reinforcing the idea that, not only in these services, nurses should place themselves as care managers and favor the empowerment of the individuals on their health situation and proposed interventions.

The most frequent indications for the use of OAC were AF (34.4%), which was also observed in other studies with patients submitted to the same therapeutic modality, as well as DVT (19.5%)\(^\text{15-16}\). Sodium warfarin was the most prescribed ACO for this population (89.1%), confirming the results of other studies\(^\text{14-16}\). This might indicate that the well-defined epidemiological and therapeutic delimitation among OAC users is a widespread factor in different contexts, which tends to facilitate nurses’ systematized practice for the quality of care in the context of guidelines for possible drug reactions and good practices for correct compliance.

Five nursing diagnoses were identified among the OAC users attending the outpatient clinic of this study. It is worth mentioning that the Risk for bleeding, defined by NANDA-International as “risk to a decrease in blood volume, which may compromise health”\(^11\), was present in all 128 (100%) individuals who composed the sample, as already expected, since the use of anticoagulant drugs is known to be a clinical risk factor for bleeding\(^12\). Nevertheless, nurses’ diagnostic impressions must be highlighted, since they guide the care practices, going beyond the “merely” clinical finding, as well as the evaluations of the outcome of care.

Hemorrhagic complication is the most feared when it comes to oral anticoagulants, since they constitute substances that prevent the thrombus formation. But their ideal dose is very tenuous, so that the individual remains within the desired therapeutic limit, and can evolve to situations of bleeding that may be lethal, such as: gingival bleeding; epistaxis; hematuria; excessive bleeding in simple cuts; bruises; and even internal bleeding, such as digestive hemorrhages\(^\text{17-18}\).
Elderly people are among the users who benefit most from OAC therapy; however, they are also those with a higher risk of hemorrhagic complications. Thus, the findings of this study reveal that individuals with bleeding complications (70.4%) were aged 60 years and older, a fact that also reinforces the need for strict supervision of the health team regarding follow-up care. In the context of nurses, it is worth noting that, as protagonists in directing care, they should guide the elderly and their families to prevent falls, cuts, injuries, among other factors that can trigger hemorrhagic reactions.

Hemorrhagic events can affect from 4.2 to 15% of individuals using OAC, which may be related to the inadequate use of this medication. Moreover, a quick action of the nursing team is necessary to verify signs of bleeding to act in the initial moments, as well as to pass information to the individuals and relatives regarding the signs and symptoms of bleeding to avoid more severe complications.

The INR value is one of the parameters used to assess the effectiveness of oral anticoagulant therapy. In general, target INR values vary according to the indication for OAC use, that is, they should vary between 2.0 and 3.0 for those individuals with deep vein thrombosis; with atrial fibrillation isolated or associated to rheumatic valve disease, not yet operated; or with a biological prosthesis model, regardless of position. And between 2.5 and 3.5 for individuals using mechanical heart valve prostheses, regardless of the position (mitral or aortic), and heart rate. Considering this indicative for the participants of this study, the INR value ranged from 1.03 to 4.18, with an average of 2.2, meeting the recommendations, despite the variance amplitude of this measure.

A single therapeutic range for OAC use may not be ideal for all indications; however, moderate-intensity anticoagulation (INR=2.0-3.0) is effective for most clinical indications, corroborating the interpretation that, according to the INR assessment of the subjects studied, they can be considered within the expected therapeutic range.

It is noteworthy that, although the subjects were evaluated as within the therapeutic range for oral anticoagulation, the INR values varied above and below the target, which could cause hypo or hypercoagulability, confirming data from study performed in a tertiary hospital in the interior of São Paulo, Brazil. Thus, it is known that maintaining INR values within the desired therapeutic limit is a challenge for the caregiver team and for users in OAC therapy, but definitely a factor to be constantly sought, including laboratory control and data collection itself with the patient and/or the relative/companion.

Among the study participants, 73% had hemorrhagic complications, a corroborated finding in literature correlated with research involving OAC users. Although the incidence of hemorrhagic or thromboembolic complications is not homogeneous in the literature, hemorrhagic complications are more common and the most feared during OAC therapy, since they can be fatal. This reinforces the finding regarding the nursing diagnosis Risk for bleeding present in the entire sample (Table 2), emphasizing the importance of nurses to use clinical reasoning and the diagnostic taxonomy of their choice as factors that promote visibility in their work, in the direction of care context.

Another nursing diagnosis identified in 100% of the subjects was the Risk for infection, defined by NANDA-International as "vulnerable to invasion of pathogenic organisms." This diagnosis was not evidenced due to the OAC use itself, but it was related to the need for frequent venous blood collections to verify the INR value, a mandatory demand for this population. For this reason, nurses must commit themselves to the compliance with asepsis in collecting biological material, training the team whenever necessary, and rationally use the technologies available for care.

Inadequate skin preparation before performing invasive procedures can contribute greatly to the development of infections. Although performing peripheral venous puncture is considered a simple and common technique in nursing care practice, it requires important...
decision-making processes regarding the choice of the best puncture site, the use of appropriate materials, and the performance of the appropriate technique\(^{(19-20)}\). Using smaller caliber catheters is recommended to avoid mechanical phlebitis and, consequently, bloodstream infection\(^{(20)}\). Nonetheless, the individualized evaluation of each patient must be done\(^{(19-20)}\), thus requiring the role of nurses.

When considering choosing better conditions for patient care, it is necessary to reflect on the identification of two diagnostic risk labels in 100% of the sample: Risk for bleeding and Risk for infection. This reflection is necessary because, in theory, a nursing diagnosis serves to individualize care and direct actions more in line with the unique reality of each human being\(^{(19-20)}\). Therefore, even though the result reflects a research and not only the clinical practices performed with the participating patients, attributing two nursing diagnoses to all users can be worrisome to weaken the individualizing potential of nursing diagnoses.

Given the above, we go further in the proposed reflection on the idea that, to really individualize care, nurses must critically incorporate the means and instruments of the work in the care management, besides the rational and correct use of diagnostic taxonomies for care planning\(^{(5)}\). For example, regarding the Risk for bleeding identified among the nursing diagnoses, nurses in the outpatient care can use the results of laboratory tests to a clearer and direct definition of which patients are most at risk and not just “limit” themselves to labeling identification of nursing diagnosis.

The nursing diagnosis Imbalanced nutrition: more than body requirements, defined by NANDA-International as “intake of nutrients that exceeds the metabolic needs”\(^{(11)}\), was identified in 90 (70.3%) individuals attending the Oral Anticoagulation Outpatient Clinic in study. Of these, 21 (23.1%) had the INR value outside the therapeutic range, that is, below 2.0 or above 3.0. Body mass index (BMI) above desirable limits may compromise the established therapy, since weight gain and even obesity, as a comorbidity, is a crucial factor to reduce the anticoagulant effect\(^{(17)}\). This factor tends to emphasize the strengthening of the educative action of nurses, since they can try to negotiate with the patient based on justifications to seek the weight control, along with other life habits compatible with the health improvement.

Hypertension is one of the comorbidities that can affect the obese population, which may also be related to advanced age, a predominant aspect in this study. That said, it is essential that nursing actions with the hypertensive elderly and their families include strategies of promotion of healthy lifestyles and encouragement, making personal responsibility interact for building self-care and improving quality of life\(^{(21)}\).

People with chronic diseases, such as hypertension and obesity, are known to need nursing care that considers their specificities. Nurses are the professionals with the skills to identify vulnerable points in care, performing actions of health promotion, orientation to feeding, and prevention of weight gain, seeking to raise awareness for the adoption of a lifestyle compatible with its quality and prevention of complications\(^{(21)}\).

The nursing diagnosis Ineffective peripheral tissue perfusion, defined as “decrease in blood circulation to the periphery that may compromise health”\(^{(11)}\), was identified in 43 (33.6%) individuals of the study. Patients with peripheral arterial disease (associated with another pathology that indicated the use of OAC) and deep vein thrombosis, either alone or associated with another morbidity, were included in the study, considering that prior DVT is considered a risk factor for the formation of new thrombi, as these present endothelial alterations provoked by the initial episode\(^{(1-2)}\). When there is an increased risk of recurrent embolic events, it is necessary to maintain the INR value within the therapeutic limits with possible dose adjustment of OAC, seeking the secondary prevention of new thrombotic events\(^{(1)}\). As for the peripheral arterial disease, it is mentioned due to the decrease of the blood supply to the affected site, generating an ineffective perfusion.
of this area\(^{(2,3)}\). In this perspective, nursing care includes: guidance on the positioning of the limb, facilitating venous return; correct use of specific medications; methods for pain relief and control; and early identification of signs and symptoms related to secondary complications\(^{(22)}\).

The nursing diagnosis *Ineffective health management*, defined as a “pattern of regulating and integrating into daily living a therapeutic regimen for the treatment of illness and its sequelae that is unsatisfactory for meeting specific health goals”\(^{(11)}\) was identified in 7 (20%) research subjects.

The study revealed that 20% of the subjects surveyed stopped using OAC voluntarily. A hypothesis regarding the random suspension of therapy, without advice from health professionals, is that the subject often fails to identify the protection offered by the medication, since the changes that are usually occurring are directed to changes in their lifestyle due to OAC and not necessarily due to some physical, mental, or psychological change caused by the drug, which is evident in the case of analgesics, for example, in which the individual can notice the difference before and after taking the drug, based on the pain relief (or not).

This is another warning sign for the importance of the guidelines and specific care to OAC users, seeking to prevent complications and achieve the goals of therapy for each group, whether temporary users or not of this medication. In this aspect, the importance of the systematized nursing practice is reaffirmed, including the diagnostic reasoning that will certainly direct care actions in a more solid and informed way\(^{(9,10)}\).

Not least, as previously discussed, in addition to diagnostic identification, nurses must be trained in strategic skills, to optimize information for individualized and qualified care.

The description of the sociodemographic and clinical profile of patients and their nursing diagnoses can support the care planning for OAC users, establishing achievable individualized goals, and possibly contributing to the prevention of undesirable complications, such as thrombus formation or hemorrhagic events. Nevertheless, studies that make feasible interventions and evaluations of nursing outcomes in this scope are still necessary.

**Conclusion**

It was possible to identify the sociodemographic and clinical profile of patients submitted to oral anticoagulation in outpatient clinic follow-up and the main nursing diagnoses that can be associated with this clientele. The following findings stand out: the patients profile of elderly people, married, with low schooling, with indication for the referral therapy in study mainly for atrial fibrillation and deep vein thrombosis, using sodium warfarin, and adequate mean clotting time expressed by INR.

It is concluded that the nursing diagnoses listed combines with the clinical profile of the users. Thus, reflecting a scenario that is more focused on organic-functional issues, even though the need for better control of health and the domain of health promotion has emerged to a lesser extent.

The well-defined panorama identified contributes to the systematization of individualized care related especially to the prevention of complications. In this aspect, the investigation can favor the consolidation of nurses as care managers.

The limitations of this research are related to its purely descriptive aspect, not being possible to establish more accurate inferences and/or generalizations. Nonetheless, it is postulated that the study provides great contribution to the evidence-based nursing practice, especially because it focused on a peculiar audience. Therefore, the research advances in the knowledge to strengthen the rational formulation of systematized care plans to patients using oral anticoagulants in outpatient follow-up, which are usually a population less focused on the care systematization processes and related scientific dissemination in comparison to hospitalized users.
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Collaborations

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2. writing of the article and relevant critical review of the intellectual content: Daiana de Freitas, Kelly Ribeiro, João Lucas Campos de Oliveira, Fabiana Gonçalves de Oliveira Azevedo Matos, Ariana Rodrigues da Silva Carvalho and Cláudia Ross;

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