



Brazilian guidelines for arterial hypertension: the reality of nursing in a specialty hospital*

Diretrizes brasileiras de hipertensão arterial: realidade da enfermagem em hospital especializado

Directrices brasileras de hipertensión arterial: realidad de la enfermería en un hospital especializado

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ABSTRACT

Objective: To evaluate knowledge about the technique of blood pressure measurement among nursing professionals in a health care institution. To identify the relationship between professional qualification and the proper development of technique. **Methods:** The researcher applied a questionnaire to nursing professionals during the verification of arterial pressure of patients. These questions related to the Brazilian Guidelines on Arterial Hypertension V. **Results:** Of the nursing professionals, technicians and assistants, 8.41% attained the cutoff point stipulated as adequate correct answers (80%). There was a direct relationship between professional qualification and the number of correct answers. **Conclusion:** Brazilian Guidelines on Arterial Hypertension V were not followed in their entirety by nursing professionals. A wide dissemination of guidelines, the implementation of training programs and monitoring of the technique should be encouraged.

Keywords: Guidelines; Blood Pressure; Nursing

RESUMO

Objetivo: Avaliar o conhecimento sobre a técnica da verificação da pressão arterial nos profissionais de enfermagem em uma instituição de saúde. Identificar a relação entre a qualificação profissional e o desenvolvimento correto da técnica. **Métodos:** O pesquisador aplicou um questionário aos profissionais de enfermagem durante a verificação da pressão arterial dos pacientes, questões estas relativas às V Diretrizes Brasileiras de Hipertensão Arterial. **Resultados:** Dos profissionais de enfermagem, técnicos e auxiliares, 8,41 %, atingiram o ponto de corte estipulado como adequado de acertos (80%). Houve relação direta entre a qualificação profissional e a quantidade de acertos. **Conclusão:** As V Diretrizes Brasileiras de Hipertensão Arterial não são seguidas em sua plenitude pelos profissionais de enfermagem. A ampla divulgação das diretrizes, a implementação de programas de capacitação e a monitoração da técnica devem ser incentivadas.

Descritores: Diretrizes; Pressão Arterial; Enfermagem

RESUMEN

Objetivo: Evaluar el conocimiento sobre la técnica de la verificación de la presión arterial en los profesionales de enfermería en una institución de salud. Identificar la relación entre la calificación profesional y el desarrollo correcto de la técnica. **Métodos:** El investigador aplicó un cuestionario a los profesionales de enfermería durante la verificación de la presión arterial de los pacientes, preguntas que fueron relativas a las V Directrices Brasileras de Hipertensión Arterial. **Resultados:** De los profesionales de enfermería, técnicos y auxiliares, el 8,41 %, alcanzaron el punto de corte estipulado como adecuado de aciertos (80%). Hubo relación directa entre la calificación profesional y la cantidad de aciertos. **Conclusión:** Las V Directrices Brasileras de Hipertensión Arterial no son seguidas en su plenitud por los profesionales de enfermería. La amplia difusión de las directrices, la implementación de programas de capacitación y el monitoramiento de la técnica deben ser incentivadas.

Descriptor: Directrices; Presión Arterial; Enfermería

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INTRODUCTION

Systemic Arterial Hypertension (SAH) is the major risk factor for coronary disease, kidney failure and heart failure, affecting a third of the world population ⁽¹⁾. Throughout life, there is a 90% probability of an individual becoming hypertense⁽²⁾. SAH represents one of the greatest challenges to public health in Brazil. It is estimated that 30 % of the adult Brazilian population over the age of 40 years may have high blood pressure ⁽³⁾. In view of this, it is necessary for health professionals to have up-to-date knowledge of the epidemiologic, diagnostic and therapeutic aspects of SAH, in order to assure a correct approach to the disease ⁽⁴⁾.

In hospitals specialized in cardiology, according to Administrative Ruling No. 227 of April 05, 2002 from the Ministry of Health, the team must be trained and qualified to perform its tasks, offer specialized and full assistance to patients with cardiovascular diseases, and have the necessary material/equipment in a perfect state of conservation and working order ⁽⁵⁾. With reference to the diagnosis and treatment of SAH, Clinical Guidelines are defined as a consensus. These involve the experiences of specialists and scientific evidence in the form of a set of norms and algorithms to help health professionals make decisions about how to conduct specific clinical conditions, both as regards diagnosis and therapy⁽⁶⁾. The existent studies about the correct technical performance of verifying arterial pressure (AP) were conducted in health centers or general hospitals.

The Fifth Brazilian Guidelines on Arterial Hypertension, revised in 2006, favor the dissemination of the most important changes in the prevention, diagnosis treatment and control of SAH. Correct measurement is an essential condition for attaining the objectives of the Guidelines ⁽⁷⁾.

A previous study evaluating the adhesion of doctors to the Hypertension Guidelines found disagreement in the classification of the degree of the disease in 56.8 % of situations, with regard to cardiovascular risk there was 63.8% disagreement about cases and 54 % of the time, the treatment recommended was not in conformity with that suggested by the protocol. The study demonstrated that the protocol, which should be an important tool in the control of SAH, was not being followed⁽⁸⁾.

Another study conducted by telephone with 483 doctors, with the aim of evaluating observance of the Guidelines, it was concluded that they were being partially followed. When asked about the use of the suggested recommendations, 42.5 % reported that they followed them completely; 49.8 % adhered partially; 2.1 % related that they did not follow the suggestions of the Guidelines and 4.5 % had not read them. In the

study it was found that 59.6 % of the appliances used are of the aneroid type, but 27.1 % of doctors did not check the appliance calibration as suggested⁽⁹⁾. Moreover, in a review article on the effectiveness of the Guidelines for a precise diagnosis of hypertension, questions arose about the recommendation of medication as regards the use of a diuretic as a first option; lack of professionals' knowledge about imprecise equipment, calibration and the physical environment in conditions adjusted to the patient. Thus, the apparent ease of using the measurement of arterial pressure to define, classify and diagnose hypertension is questioned, since the recommended guidance are not followed in full ⁽¹⁰⁾.

When we analyzed a study conducted by means of interviews and direct observations with a sample of 105 health professionals, in a public hospital in the interior of the state of São Paulo, which compared the evaluation of techniques for measuring AP, we found a significant difference between the measurements of Nurses and Nursing Aides, who obtained 40 % of correct answers in the stages of the procedures; whereas the nursing and medicine docents, doctors and academics obtained around 70 %. It was demonstrated that all professional categories need to improve their performance in the stages for measuring AP, and that there is urgent need to develop teaching and learning strategies for the procedure ⁽¹¹⁾. However, no specific analyses have yet been performed in hospital specialized in cardiology .

In view of this, the aim of this study was to evaluate the performance and knowledge of the Brazilian Guidelines on Hypertension among nursing professionals at a Hospital Specialized in Cardiology.

METHODS

A cross-sectional study was conducted in the period from March 2008 to February 2009.

The study included 85 nursing technicians and 22 nursing aides, working at the Cardiology Institute of Rio Grande do Sul/ University Cardiology Foundation, RS, Brazil. All the participants signed the Free and Informed Term of Consent (FITC). The study was developed in compliance with the precepts governed by Resolution 196/96 of the National Health Council, which established the rules for research with human beings, with the anonymity and privacy of the researchers being protected. The study was approved by the Local Research Ethics Committee Protocol Number CEP/IC-FUC UP 3954/06.

Nursing professionals were included, divided into lots in hospitalization units that used aneroid arterial pressure appliances.

The following exclusion criteria were considered: Maternity leave, doctors certificate, and those laid off due to a health problem.

Studied Outcomes

Verification of Arterial Pressure

The technique for AP verification was considered in accordance with that stipulated by the Fifth Brazilian Guidelines on Arterial Hypertension, with regard to preparation of the patient for arterial pressure measurement and the technical procedure.

Study Logistics

All the professionals who worked in hospitalization units of IC-FUC and who used aneroid appliances were recruited. After detailed explanation of the procedures involved in the research protocol and reading of the free and informed term of consent, the professionals who accepted participating, signed the term. The researcher followed up each nursing professional while the patient's AP was being verified, noting the closed responses on the questionnaire if the items recommended by the Brazilian Guidelines on Hypertension were or were not being followed. In addition it was checked whether the appliance was calibrated and validated. The questionnaire contained the professional's identification data, category, sex, work shift, time since conclusion of course and items related to the Brazilian Guidelines on Hypertension.

The ideal cut-off point considered was 80% of correct responses obtained with the instrument used, because it was a specialized hospital. The percentage of between 50 % and 79 % of correct responses was considered critical and below 50 %, unacceptable. The data were stored in a specific database.

Statistical Analysis

The data were digitized in an Excel spreadsheet, and afterwards analyzed using the software Statistical Package for the Social Sciences (SPSS) version 17.0 for Windows. The qualitative variables were described by means of absolute and relative frequencies; and the quantitative variables, by means of mean and standard deviation or median and interquartile interval. To compare the mean percentage of correct responses with regard to shift and profession, the Student's-*t* test was used. To compare the time elapsed since conclusion of the course as regards professional qualification, the Mann-Whitney non parametric test was used. The level of statistical significance used was 5% ($p < 0.05$).

RESULTS

Of the 110 professionals that met the criteria to participate in the research, 107 agreed to participate (97.3 %), as described in Table 1.

Table 1 – Characteristics of the population

Variable	n (%)
Gender	
Female	94 (87.9)
Male	13 (12.1)
Profession	
Nursing Technician	85 (79.4)
Nursing Aide	22 (20.6)
Work Shift	
Day	62 (57.9)
Night	45 (42.1)

When the total number of actions the professional had to perform with regard to preparing the patient was evaluated, the item "Asked whether the bladder had been emptied before the procedure", there was not one correct response. It is pointed out that none of the patients had a vesicle probe inserted (Table 2).

Table 2 – Percentage of correct responses with regard to preparation of the patient

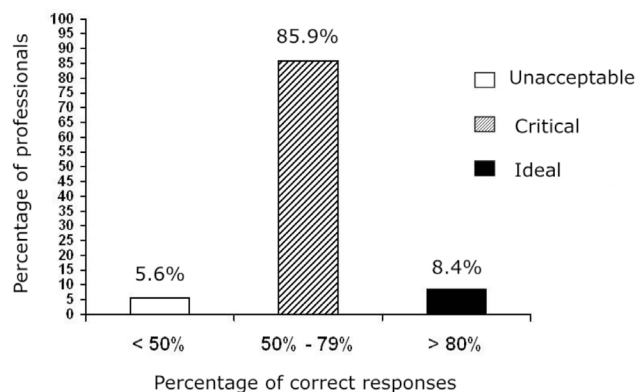
Patient	n (%)
Was instructed about the procedure	78 (72.9)
Was at rest	88 (82.2)
Silent room	91 (85.0)
Asked whether the bladder had been emptied before the procedure	0 (0)
Without drinking coffee in the previous 30 minutes	70 (65.4)
Legs uncrossed	77 (72.0)
Feet supported	95 (88.8)
Back resting against a support and be relaxed	95 (88.8)
Arm kept at heart height	89 (83.2)
Palm of the hand facing up	78 (72.9)
Cooperation requested	48 (44.9)

With regard to professionals' correct responses as regards the AP verification technique, it was observed that the items "Cuff placed without leaving clearance of around 2 to 3 cm above the cubital fossa" and "Attention was paid to deflation" were the items that presented the highest frequency of correct responses. Nevertheless, with reference to the items "Cuff selected according to the circumference measurement of the patient's arm" and "The member used was noted" there was not one correct response and only 22.4% of the professionals responded correctly to the item "it was inflated up to 20 to 30 mmHg above the estimated level" (Table 3).

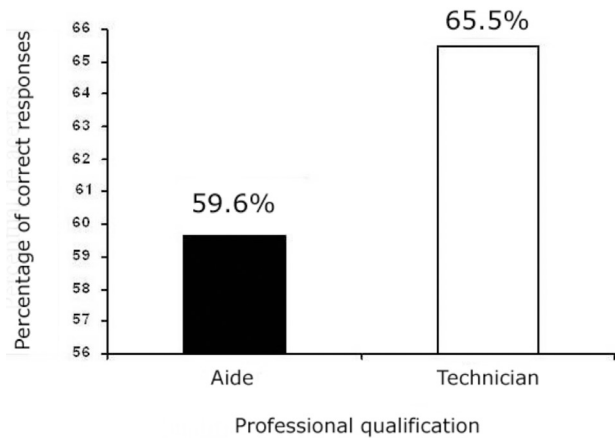
Table 3 – Percentage of correct responses in the stages of AP verification

Procedure	n (%)
Cuff selected according to the circumference measurement of the patient's arm	0 (0)
Sleeve placed without leaving clearance of around 2 to 3 cm above the cubital fossa	106 (99.1)
The middle of the compressive part of the sleeve was centralized over the brachial artery	95 (88.8)
Brachial or radial artery was palpated to estimate the level of arterial pressure	45 (42.1)
The bell of the stethoscope was placed on the brachial artery	100 (93.5)
It was inflated up to 20 to 30 mmHg above the estimated level	24 (22.4)
Deflation was slow	95 (88.8)
Attention was paid to deflation	104 (97.2)
It was immediately recorded	80 (74.8)
The member used was noted	0 (0)
The patient was informed of the result of his/her AP	75 (70.1)

It is pointed out that only 8.41% of the professionals attained the established cut-off point of 80% of correct responses, considered ideal for a specialized hospital in this study. (Figure 1).

**Figure 1** – Distribution of professionals by percentages of correct responses.

In the analysis about the professional category and frequency of correct responses, it was observed that the Nursing Technicians had a higher number of correct responses ($p=0.013$), when compared with the Nursing Aides, as demonstrated in Figure 2.

**Figure 2** – Percentage of correct responses among the professional categories

DISCUSSION

This study was conducted with the purpose of evaluating the categories of technicians and nursing aides at a hospital specialized in cardiology verified the arterial pressure of hospitalized patients in accordance with the recommendations of the Fifth Brazilian Guidelines on Hypertension. The relevance of this study is owing to the importance of the Hypertension Guidelines in the control of cardiovascular risk. The professionals researched did not follow the recommendations stipulated for the verification of AP, ignoring some of the basic and essential requisites.

AP measurement by the classical technique, proposed over a century ago by Riva-Rocci, is one of the most widespread and performed procedures in health care, in spite of the increase in invasive techniques and use of electronic appliances. Nevertheless, it is pointed out that the adequate measurement of AP involves various basic items of care with regard to the patient, equipment, technique and correct recording⁽¹²⁾.

Of the 24 questions observed for qualifying the measurement of AP as reliable and ideal, we established 19 questions (80%) correct responses as a cut-off point; 9 professionals (8.4%) obtained this result.

In the present study, the percentage of correct responses about the technique for verifying AP among the Nursing Technicians was 65.5% and among Nursing Aides it was 59.6%. It is pointed out that the Nursing Technician Course has a duration of 1600 hours and as a prerequisite, it is necessary to have completed high school education. Whereas the Nursing Aide Course has a duration of 1100 hours and as a prerequisite, only primary schooling is demanded. In a descriptive study with 630 nursing professionals, about the indirect measurement of arterial pressure, the aim was to identify the need for knowledge by health professionals with

regard to AP measurement. In this study, 75% of the sample required detailed information about Arterial Hypertension, such as: Correct technique, equipment used, type of patient and AP values. As a result, a continued educational program was planned for the nursing team, with the aim of raising consciousness about the importance of improving the quality of assistance to hypertense patients ⁽¹³⁾.

Comparison with other studies proves that the reality in Health Centers and General Hospital is still very deficient. In a cross-sectional study that evaluated theoretical and practical knowledge in 110 nursing aides, 44 doctors and 25 nurses (179 staff members), in Health Centers in Sorocaba – SP, it was perceived that theoretical knowledge exceeds practical knowledge. When verifying arterial pressure, factors such as the patient's rest, bladder emptying, prior ingestion of foods were observed only by a doctor and nurse, signifying that 98.8 % of the sample did not appreciate these aspects, showing evidence of a large gap between theory and practice ⁽¹⁴⁾.

In the items related to preparation of the patient in our evaluation, we observed that keeping the arm at heart height, palm of the hand facing upward, feet supported and the back of the body relaxed, was similar to the items stipulated by the Guidelines, attaining a minimum percentage of 72.9% correct responses. Hospitalized cardiopathic patients are in bed or seated at the time of verifying vital signs and are correctly positioned, so there is no need for new guidance. In an article recently published in the British Journal of Nursing, the competences necessary for the indirect measurement of AP were discussed. The author defines the factors that could have an influence on pressure measurement, such as the patient's position, the use of aneroid type of equipment, cuff according the arm circumference, and auscultation of Korotkoff sounds. In the conclusion, the authors confirmed that the measurement of AP is a skill to be developed by duly qualified health professionals. Subsequent knowledge should be added to the technique, with construction of a practical guide to the indirect measurement of AP ⁽¹⁵⁾.

Communication with 72.9 % and information about the results in 70.1% of correct responses must be totally attained, since these are imperative questions in any care provided, since communication shows care and respect for the human being, which are indispensable conditions for being nursing professionals. The American Nurses Association defines nursing as protection, promotion and appreciation of health ⁽¹⁶⁾.

In a Brazilian article on theoretical-philosophical reflection expounded that nursing is based on care, essential to the profession, with appreciation of the human being ⁽¹⁷⁾. A research with a qualitative approach

to humanization among nursing professionals was conducted with the purpose of reflecting on the subject. The professionals suggested that humanization is the differential in care, but the majority recognize that they act with affective distance from the patient ⁽¹⁸⁾.

The patients were not asked or instructed about emptying the bladder before verification of AP. In European experimental study it was proved that distension of the bladder, caused by the accumulation of urine in it, caused partial inhibition of baroreceptor stimulation, resulting in an increase in arterial pressure and cardiac frequency ⁽¹⁹⁾.

In the item on the use of the cuff proportional to the patient's arm circumference, invariably the cuff standardized width was always used, and between obese and thin patients this guideline was not observed. The brachial or radial arteries were only palpated to estimate the level of AP in 42.1 % of the procedures. Thus, there was greater or less insufflation than that stipulated, resulting in measurement biases. In a study on brachial circumference (BC) in hospitalized patients and the available of cuffs in a hospital with a sample of 81 patients, it was found that 60.4 % of the patients had a BC smaller than 30 cm; 22.3 % ha a BC larger than 32 cm; only 17.3 % had a BC between 30 and 32 cm, and only a standard cuff was made available ⁽²⁰⁾, which happens in the majority of hospitals, including those that are specialized.

Among the appliances, 7.5 % were of personal use and not validated by the National Institute of Metrology, Normatization and Industrial Quality (Inmetro) and 82.2% did not know the calibration date; and did not perceive this to be an integral part of correct recording. In the "Hospital das Clínicas" of the School of Medicine, Ribeirão Preto, of the University of São Paulo (HCFMRPUSP) a study was conducted with the purpose of evaluating the integrity of the 358 sphygmomanometers. It was found that 18 % of the valves and 32 % of the inflatable bags and cuffs were damaged. Therefore, systematic maintenance of appliances is imperative ⁽²¹⁾.

CONCLUSION

The Brazilian Guidelines on Arterial Hypertension are not followed to their full extent by nursing professionals.

From the correct records of AP measurements, the patients entire therapy is planned. Undoubtedly, as this is one of the attributes of a nursing professional, its correct performance accredits the reliability and image of excellence of a health institution.

The Nursing Management of the Institution has been presented with a program for qualification and training in the non invasive technique of arterial pressure verification, designed for nursing professionals.

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