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RISK FACTORS RELATED TO THE INCIDENCE OF ASPIRATION PNEUMONIA

FATORES DE RISCO ASSOCIADOS À INCIDÊNCIA DE PNEUMONIA ASPIRATIVA

FACTORES DE RIESGO ASOCIADOS CON LA INCIDENCIA DE NEUMONÍA POR ASPIRACIÓN

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ABSTRACT

Objective: to characterize the profile of the patients with aspiration pneumonia and to identify the risk factors related to the occurrence of it. **Method:** descriptive, transversal and documental study with a quantitative approach, performed at a public hospital of Aracaju/SE, Brazil, after the approval of the Ethics and Research Committee of the Federal University of Sergipe, under No. CAAE - 2679.0.000.107-10. The data collection was performed in the period of August to September of 2010 and the sample was constituted of 27 patients with diagnoses of pneumonia. **Result:** the average of hospital stay was 42.0 days, male 63.0%, elderly 74.0%, average 67.9 years- old, married 55.6%, hypertensive 55.5% and victims of stroke 37.0%. It was verified that 44.4% developed the aspiration pneumonia. Among the ones who developed the aspiration pneumonia, the diet type was enteral and it was not performed the probe position test; 100% were bedridden and 66.7% used invasive mechanical ventilation. **Conclusion:** the patients with a diagnosis of pneumonia were mostly men, elderly, married, hypertensive and had sequels of stroke, the majority was unconscious, bedridden, had an enteral diet, supine position during the administration of the diet. Moreover, it was not performed the test to verify the probe position before its administration. It is suggested a discussion about the need of the management of nursing assistance related to the critical patient, in the prevention of the occurrence of aspiration pneumonia in hospitalized patients. **Descriptors:** incidence; aspiration pneumonia; risk factors.

RESUMO

Objetivo: caracterizar o perfil dos pacientes com pneumonia aspirativa e identificar os fatores de risco relacionados à ocorrência da mesma. **Método:** estudo descritivo, transversal, documental, com abordagem quantitativa, realizado em um hospital público de Aracaju/SE, Brasil, após a aprovação do projeto de pesquisa pelo Comitê de Ética e Pesquisa da Universidade Federal de Sergipe, sob nº CAAE - 2679.0.000.107-10. A coleta de dados foi realizada no período de agosto a setembro de 2010 e a amostra foi constituída por 27 pacientes com diagnósticos de pneumonia. Os dados foram processados no programa Epi info 6.0. Realizou-se estatística descritiva e os resultados foram apresentados em tabelas. Utilizou-se o teste qui-quadrado, com o nível de significância de 5%. **Resultado:** a média de internação foi de 42,0 dias, sexo masculino 63,0%, idosos 74,0%, média 67,9 anos, casados 55,6%, hipertensos 55,5% e vítimas de Acidente Vascular Encefálico 37,0%. Verificou-se que 44,4% desenvolveram a pneumonia aspirativa. Dentre os que desenvolveram pneumonia aspirativa, o tipo de dieta administrada era enteral e não se realizava o teste da posição da sonda; 100% eram acamados e 66,7% utilizavam ventilação mecânica invasiva. **Conclusão:** os pacientes com diagnóstico de pneumonia em sua maioria eram homens, idosos, casados, hipertensos e portadores de sequelas de AVE, a maioria estava inconsciente, acamados, em uso de dieta enteral, posicionados em decúbito dorsal durante a administração da dieta, além de não ter sido realizado o teste para verificar o posicionamento da sonda antes de sua administração. Sugere-se discussão quanto à necessidade do gerenciamento da assistência de enfermagem em relação ao paciente crítico, na prevenção da ocorrência de pneumonia aspirativa em pacientes hospitalizados. **Descritores:** incidência; pneumonia aspirativa; fatores de risco.

RESUMEN

Objetivo: caracterizar el perfil de los pacientes con neumonía por aspiración e identificar los factores de riesgo relacionados a su ocurrencia. **Método:** estudio descriptivo, transversal, documental, con abordaje cuantitativo, realizado en un hospital público de Aracaju/SE, Brasil, después de la aprobación del Comité de Ética e Pesquisa de la Universidad Federal de Sergipe, bajo nº CAAE - 2679.0.000.107-10. La colecta de datos fue realizada entre agosto y septiembre de 2010 y la muestra fue constituida por 27 pacientes con diagnósticos de neumonía. **Resultado:** la media de hospitalización fue 42,0 días, sexo masculino 63,0%, ancianos 74%, media 67,9 años, casados 55,6%, hipertensos 55,5% y víctimas de Accidente Vascular Encefálico 37,0%. Se verificó que 44,4% desarrollaron la neumonía por aspiración. Entre los que desarrollaron la enfermedad, el tipo de dieta era enteral y no se realizaba el test de posición de la sonda; 100% eran acamados y 66,7% utilizaban ventilación mecánica invasiva. **Conclusión:** los pacientes con diagnóstico de neumonía en su mayoría eran hombres, ancianos, casados, hipertensos y portadores de séquelas de AVE, la mayoría estaba inconsciente, acamados, en dieta enteral, posicionados en decúbito dorsal durante la administración de la dieta, además de no haber sido realizado el test para verificar el posicionamiento de la sonda antes de su administración. Se sugiere discusión respecto a la necesidad de la gestión de la asistencia de enfermería con relación al paciente crítico, en la prevención de la ocurrencia de neumonía por aspiración en pacientes hospitalizados. **Descriptores:** incidencia; neumonía por aspiración; factores de riesgo.

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INTRODUCTION

Pneumonia is highly prevalent, approximately 200 million cases of pneumonia occur annually, with 100 million cases in children and 100 million cases in adults. In Chile, 50% of hospitalizations for respiratory diseases in adults are attributed to pneumonia, and is a first specific cause of death in the population over 80 years of age.¹⁻²

In Brazil between 2004 and 2006 pneumococcal disease was responsible for 34,217 hospitalizations in the public health system, which represented 0.1% of all hospitalizations in the sector. Also noteworthy is that the greatest and mortality rates occurred among the elderly.³

In the state of Sergipe, according to the Hospital Information System of the Unified Health System (SIH/SUS) in July 2010, among the respiratory diseases, pneumonia accounted for 45.3% of hospitalizations and 70.6% of deaths in both genders and all age groups.⁴

It is noteworthy that among the pneumonias, aspiration pneumonia has high hospital mortality, especially in the elderly and patients with neurological diseases, and in patients with sequels of Cerebrovascular accident (CVA), due to the increased prevalence of oropharyngeal dysphagia.⁵⁻⁶

It is emphasized that it is necessary for the nurse to have knowledge about aspiration pneumonia prevention in order to reduce the systemic complications resulting from this health problem of admitted patients in hospitals.

A search in the national indexed literature was performed and no similar research on this topic was found. This study is justified by the lack of similar studies and the prospect of contributing to health professionals about this problem. Based on this, appeared the following guiding questions: Is it possible to identify the incidence of aspiration pneumonia in patients admitted to public hospitals in Sergipe? What is the profile of these patients and the risk factors related to the occurrence of aspiration pneumonia?

It is expected that this study will contribute data on the incidence of aspiration pneumonia and awareness among health professionals, in particular the nursing staff about the serious problem caused by this condition. In this context, the objectives of this study were: To characterize the profile of patients and identify risk factors related to its

occurrence.

METHOD

This is a descriptive transversal study with a quantitative approach, performed at a public hospital in Sergipe, located in the city of Aracaju, from August 18, 2010 to September 30, 2010. Data collection occurred after the approval by the Ethics Committee of the Federal University of Sergipe, under protocol No. CAAE - 2679.0.000.107-10, according to Resolution No. 196 of 10 October 1996 the National Health Council/Ministry of Health.⁸

The study sample consisted of a probabilistic sample of the type intended by convenience for all patients who met the inclusion criteria: over 18 years of age, both genders and were hospitalized with pneumonia diagnosis in Intensive Care Units, Semi-intensive and hospitalization sectors.

All participants filled out a Statement of Informed Consent (IC), which ensured their confidentiality and use of the results only for academic purposes. The IC contains identification data on the respondents, the researchers and the research objectives. The data collection instrument is made up of 27 questions, open and closed ended, and information on the characterization of patients and aspiration pneumonia risk factors. The collection technique used was the documentary analysis and semi-structured interview with the patient and/or family caregiver, in cases in where the first was unable to complete the research.

The data were processed using the Epi info 6.0 software, Descriptive statistics were performed and the results were presented in tables. the chi-square test was used, with a significance level of 5%.

RESULTS

We analysed 27 cases of pneumonia, with an average hospital stay of 42.0 days. The majority were males 17 (63.0%), elderly 20 (74.0%) with an average of 67.9 years of age, married 15 (55.6%), hypertension 15 (55.5%) and patients with sequels of strokes 10 (37.0%). Of the total patients studied, 12 (44.4%) developed aspiration pneumonia and in full (100%) of these were bedridden and in 10 (83.3%) were unconscious. Body hygiene in 9 (75.0%) was carried out by nursing staff. It was observed that 8 (66.7%) patients were on invasive mechanical ventilator support to maintain adequate ventilation, as shown in Table 1.

Table 1. Characterization of patients with pneumonia. HUSE. Aracaju-SE, Brazil.

Variables	Occurrence of Aspiration		Pneumonia	p-value*
	Yes	No	Total	
Gender				
Female	5(41.7%)	5(33.3%)	10(37.0%)	0.178
Male	7(58.3%)	10(66.7%)	17(63.0%)	
Marital Status				
Single	1(16.7%)	5(83.3%)	6(22.2%)	0.050
Married	8(66.7%)	7(46.7%)	15(55.6%)	
Widowed	3(25.0%)	3(20.0%)	6(22.2%)	
Level of Consciousness				
Conscious	1(8.3%)	3(20.0%)	4(14.8%)	0.001
Confused	1(8.3%)	4(26.7%)	5(18.5%)	
Unconscious	10(83.3%)	8(53.3%)	18(66.7%)	
Bedridden patient				
Yes	12(100%)	14(93.3%)	26(96.3%)	0.001
No	0(0%)	1(6.7%)	1(3.7%)	
Responsible for Body Hygiene				
Tec. Nursing,	6(50.0%)	9(60.0%)	15(55.6%)	0.045
Aux. Nursing,	3(25.0%)	2(13.3%)	5(18.5%)	
Family Members	3(25.0%)	4(26.7%)	7(25.9%)	
Type of respiration				
Spontaneous	0(0.0%)	2(13.3%)	2(7.4%)	0.001
Artificial invasive	8(66.7%)	12(80.0%)	20(74.1%)	
Artificial non-invasive	4(33.3%)	1(6.7%)	5(18.5%)	
Total	12(100%)	15(100%)	27(100%)	

* Chi-square p-value <0.005

The data in Table 2 shows that 12 (100%) of the patients used an enteral nutrition diet, all of which 12 (100%) were in upright position and the probe position test was not carried out. In 11 (91.7%) diet remained closed during

food administration in 9 (75%) patients were treated with antibiotics and 6 (41.7%) exclusively used immunosuppressives, corticosteroids.

Table 2. Descriptive analysis of risk factors for aspiration pneumonia. HUSE. Aracaju-SE, Brazil.

Variables	Occurrence of Aspiration		Pneumonia	
	Yes	No	Total	p-value*
Type of feeding				
Parenteral	0 (0%)	1(6.7%)	1(3.7%)	0.001
Enteral	12(100%)	14(93.3%)	26(93.6%)	
Diet usage during body hygiene				
Yes	1(8.3%)	1(6.7%)	2(7.4%)	0.001
No	11(91.7%)	14(93.3%)	25(92.6%)	
Responsible for administration of diet				
Tec. Nursing,	6(50%)	9(64.3%)	15(55.5%)	0.030
Aux. Nursing,	2(16.7%)	3(21.4%)	5(18.5%)	
Family Members	4(33.3%)	3(21.4%)	7(25.9%)	
Position probe test				
Yes	0(0.0%)	0(0.0%)	0(0.0%)	-
No	12(100%)	15(100%)	27(100%)	
infusion pump usage				
Yes	6(50%)	9(64.3%)	15(55.5%)	0.433
No	6(50%)	6(22.2%)	12(44.4%)	
Use of antibiotics				
Yes	9(75%)	10(66.7%)	19(70.4%)	0.034
No	3(25%)	5(33.3%)	8(29.6%)	
Use of immunosuppressives				
Yes	6(41.7%)	7(40%)	11(407%)	0.336
No	7(58.3%)	9(60%)	16(59.3%)	
Total	12(100%)	15(100%)	27(100%)	

* Chi-square p-value <0.005.

Data from this study revealed that 10 (27%) of patients with pneumonia diagnoses had physical limitations resulting from CVA and among these, 9 (90%) developed aspiration pneumonia.

DISCUSSION

The results corroborate with several^{5-6,9-10} in which there is a high incidence of aspiration pneumonia in men, elderly and unconscious.

Pneumonia is a serious public health

problem with significant impact on morbidity-mortality of the population, specifically in the elderly, and high costs of hospitalization, increasing the number of hospital days and reduced work capacity and therefore productivity. With regard to aspiration pneumonia, studies show that the risk factor reduction helps in reducing the incidence of this disease.^{5,9-11}

This study identified that basic skills such as hygiene and diet administration were performed by relatives. It is noteworthy that oral hygiene practices are also critical for the

prevention of bacterial flora reduction and therefore reduce pneumonia risk of in critical patients, however it was found that this technique was not performed by the institution's nursing staff.¹²

It is noteworthy that, the legislation clearly demonstrates that care such as movements in bed, hygiene and diet administration tasks are unique to nursing. Moreover, even in cases in which the diet was administered by the nursing staff, this did not perform the testing position probe, which violates nursing professional principles.

The study¹⁵ conducted in São Paulo reveals that there should be a reflection on the nurse-family relationship and its impact on critical condition patient care with regard to knowledge / information and emotional security, as in cases of patients with chronic sequels, the family member becomes the full caregiver. However, it is noteworthy that, during hospitalization, failure to comply with current legislation by the nursing staff, can contribute to harm to the patient.

Regarding the use of mechanical ventilator support, studies^{9,16} show that invasive mechanical ventilation predisposes pneumonia development, which was also demonstrated in this study. Performing endotracheal suction inappropriately associated with a reduction of the cough reflex and accumulation of bronchial secretion, aggravates the clinical state of these patients and increases the risk of respiratory diseases, particularly aspiration pneumonia.

The vast majority (75%) of the respondents used antibiotics, which shows that antibiotics are the treatment of choice in combating nosocomial pneumonia. However, it causes a series of complications, including resistance multi-bacteria, and a strict control is necessary by the hospital infection control committees (CCIH) in order to avoid such harm.

Studies^{5,9} show that the etiologic agent identification of infection through specific tests, should precede the prescription of antimicrobial therapy. However, this study could not correlate antimicrobial therapy with the etiologic agent, through the absence of such data in the records.

Researchers¹⁷⁻⁹ state that the immunosuppressive decrease the humoral responses, and therefore make the individual susceptible to infection. In this context, this study showed that part of the respondents made use of this therapy as adjuvant treatment. It is noteworthy that nursing has a

primary role in patient care undergoing immunosuppressive therapy, the observation of signs and symptoms such as nausea, weakness, dyspnea, anorexia, fatigue, hypotension, blood glucose levels and hyperthermia.

Observed in this study, almost 90% of all patients with CVA had aspiration pneumonia. One may infer that the decreased level of consciousness, improper positioning in bed and use of enteral feeding significantly contribute to this occurrence. These results corroborate with studies^{5,20} which state that CVA predisposes to dysphagia, and that it can contribute to the occurrence of bronchial aspiration, and therefore contraction of aspiration pneumonia. It is noted that awareness is necessary among health professionals about the importance of a holistic approach to the critically ill patient in order to improve the quality of care.²¹

CONCLUSION

Patients diagnosed with pneumonia (n=27) were mostly men 63%, average hospital stay was 42.0 days, seniors 74%, average 67.9 years of age, married in 55.6%, hypertensive 55.5% and patients with sequels of CVA 37%. From the total respondents 44.4% developed aspiration pneumonia.

It is noteworthy that the main risk factors associated with the occurrence of aspiration pneumonia were: decreased level of consciousness, use of enteral nutrition, body hygiene performed by relatives and mechanical ventilation.

A possible limitation of this study refers to the small sample size, however, is expected to contribute with ideas for nursing staff in relation to patient care, offering them the opportunity to reassess what their true mission is, and, therefore improve the quality of care provided to seriously ill patients. It is also believed to have contributed to the managers and health professionals about this serious problem which particularly affects the elderly, in whom are more likely to develop complications and consequently leads to increased comorbidity and suffering of patients and their families.

The results of this study may contribute to the discussion about the need for management of nursing care in relation to the critical patient, enabling the development of action proposals, preventing the occurrence of aspiration pneumonia in hospitalized patients.

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