# 141 - INFECTION IN ELDERLY PATIENTS HOSPITALIZED IN A PRIVATE INSTITUTION IN NATAL/RN

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## INTRODUCTION

In recent decades it has been observed a transformation of the demographic and epidemiological profile in developed countries and in developing countries such as Brazil. The World Health Organization (WHO) proposes 60 years as the age in study of elderly population (BÔAS; FERREIRA, 2007).

According to Brazilian Institute of Geography and Statistics (IBGE), there were, on average, 10 million elderly (people over 65) in 1990. In 2000, this figure was 15 million and it is estimated that it will get around 43 million elderly in 2025. According to data from WHO, this percentage increase will take Brazil to 6st position among all countries in the world (MÁRQUEZ; SOUZA, 2003).

Studies show that as a result of the population aging, it will increase the number of dependent elderly requiring, therefore, hospitalization (THOBER; CREUTZBERG; VIEGAS, 2005; MÁRQUEZ; SOUZA, 2003).

With the increase in life expectancy, the risk factors are associated with chronic-degenerative diseases, which accentuates the morbidities level in this population, and furthermore, taking them to long, that exposes them to the constant risk of hospital infections - HIs (THOBER; CREUTZBERG; VIEGAS, 2005).

The Ministry of Health (MS) defines hospital infection like that acquired after the patient admission and whose manifestation occurred during the hospitalization and after hospital discharge, which may be related to hospitalization or medical procedures (SAVITEER; SAMSA; RUTALA, 1988).

In Brazil, although there are no national statistics that reveal the real magnitude of the problem, it is estimated that between 6.5% and 15% of patients hospitalized make one or more episodes of infection, and that between 50.000 and 100.000 annual deaths are associated with their occurrence (LACERDA, 2002).

Therefore, no hospital is free of infection acquired during hospitalization, since no medical intervention available at the time, is capable of eradicating them. This is because, in addition to the invasive conducts used appropriately or not, there are risk factors considered "unchanged" as the population aging of hospitalized and, consequently, greater prevalence of immunosuppressive diseases, secondary diagnoses, need for long surgery and other (LACERDA, 2002).

The data found in these studies show the risks that hospital infections represent to the Brazilian society and ratify the data from MS that hospital infections have grown in direct reason for invasive techniques, while the healthcare professionals knowledge on practices that control the infections does not accompany this development (PRADE, 1995).

This study proposes to characterize the occurrence of hospital infection in elderly hospitalized in a private institution in Natal / RN.

## METHODOLOGY

Retrospective study with quantitative approach, developed with 65 elderly patients, admitted in the period July 2006 to June 2007 in a private hospital in Natal / RN.

The data were collected after institutional consent, in September and October 2007, in the Commission of Hospital Infection Control of the hospital under study by the National Information System for Infection Control in Health Services (SINAIS), version 2.6 online, from the Program of Hospital Infection Notification of the Ministry of Health / ANVISA.

The variables collected had been: age, sex, length of stay in the institution, status of patients admitted, internship sector, basis disease, central venous catheter use, site of hospital infection, hospital infection rate and antimicrobials use.

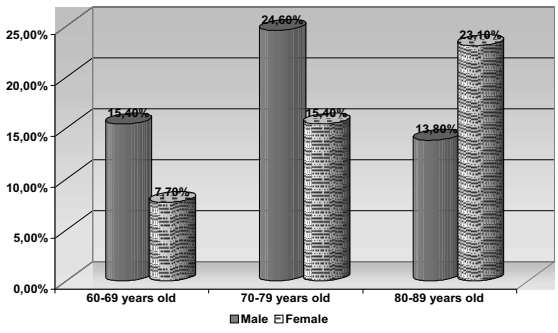
The determination of the sample size occurred according to the inclusion criteria, which set those who would take part of the study as being all the patients in medical clinics that had been hospitalized in the period from July 2006 to June 2007, aged 60 and 90 years.

The data were organized in Microsoft Excel software and transported to the SPSS 14.0 program for descriptive and inferential analysis.

## RESULTADOS

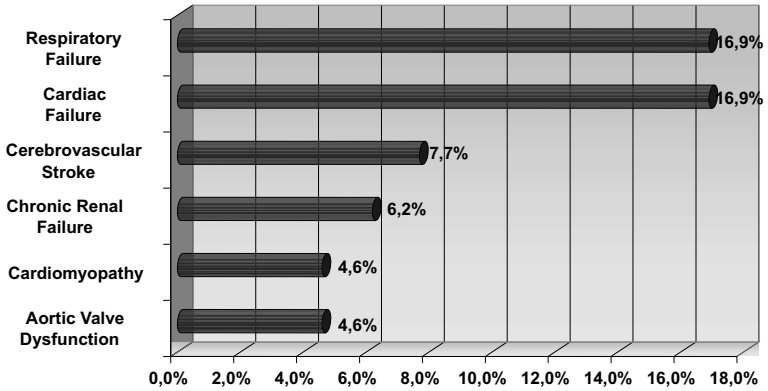
65 elderly patients were studied, being 30 women and 35 men. The study population presented the average age of 76,08 years, standard deviant (SD) of 7,328 and variance of 53,697. About the age, the population had showed 24.6% for males and 15.4% for females. The 39 patients admitted in Intensive Care Unit (ICU) have made use of central venous catheter (CVC), where 35,9% developed infection related to the it use. As for the use of antimicrobial, from the 65 patients evaluated, all have made use of, at least, one type of antibiotic. All patients admitted in ICU made use of CVC and parenteral medication.

Picture 1 shows the distribution by age and sex, and the prevalence was between 70 to 79 years, being 24.6% to male and 15.4% to female. The observed data show that the group that get more hospitalized were male (53.8%) and in the age group of 70 to 79 years (40,0%).



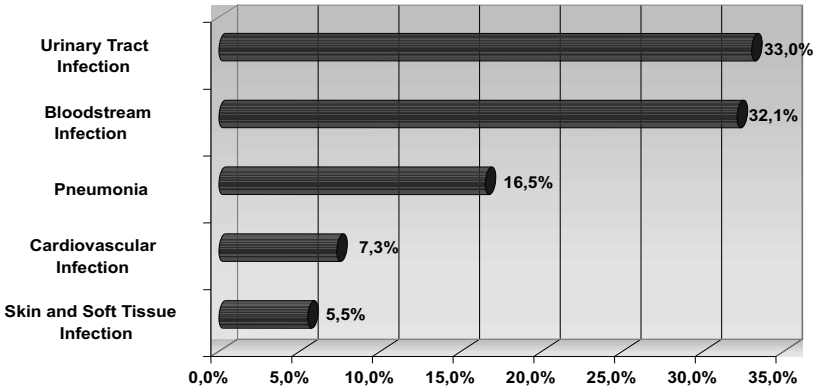

Picture 1 - Distribution by age and sex of the elderly in a private hospital in Natal / RN.

Picture 2 shows the percentage distribution by topography of the basis disease of elderly patients admitted in the hospital under study, and the two most prevalent were respiratory failure and cardiac failure, with the same percentage of 16.9%, followed by the third, cerebrovascular accident with 7.7% of the diagnoses of hospitalization causes.




Picture 2 - Basis diseases of elderly patients in a private hospital in Natal / RN.

Picture 3 shows the distribution of the main hospital infections acquired by elderly during their period of hospitalization, where the result shows that the most prevalent are urinary tract infection (33.0%), bloodstream infection (32.1%) and pneumonia (16.5%). Of the patients with bloodstream infection, 66.6% occurred through the use of CVC.




Picture 3 - Main hospital infections acquired by elderly in a private hospital in Natal/RN.

The distribution of elderly patients by hospitalization sectors, where it was found that 60,0% of those hospitalized during the research were in the ICU, 69.0% in medical clinics and 1.5% in the sector of bone marrow transplantation (BMT) . It is seen that some patients have undergone two sectors, ICU and medical clinics. This shows that there is a rotation of patient per sector, depending on their disease level; however, this does not apply to the BMT patients, since the sector for this type of patient is different, and being needed a place with reverse shield isolation, with all necessary precautions to protect the patient. It is observed that 60,0% of the patients received hospital discharge, 38.5% progressed to death and 1.5% remained hospitalized.

**DISCUSSION**

The technological advances related to invasive procedures, for diagnosis or therapeutics, and the emergence of the multi-resistant microorganisms to antimicrobial used routinely in hospital practice hospital had transformed the hospital infection a problem of public health (TURRINI; SANTO, 2002).

Elderly often need hospitalization to care for their medical conditions. But the infection acquired in hospital environment is very important in this age group due to the high rate of lethality (WERNER; KUNTSCHE, 2000; SMITH, 1989).

The highest hospital infection rates are seen in patients in the extremes of age and in oncology, surgery and intensive care services. Thus, the data of incidence and prevalence of hospital infection acquired in different studies, even in children, reflect these population and institutional characteristics (GILIO et al. 2000; AVILA - FIGUEROA et al., 1999).

In Brazil, the data on hospital infection are not disclosed. In addition, these data are not consolidated by many hospitals, making it difficult to know the problem dimension in the country (WHITE, 1993).

In this study, of the 65 patients surveyed, 53.8% are male and 46.2% are female, aging of 62 to 89, average of 76 years, (SD 7.328). All made use of, at least, one antibiotic during hospitalization and its average time was 60.46 days (SD 64.05), with minimum stay of 7 days and maximum of 308.

In the age group of 60 to 69 years, 15.4% were male and 7.7% female, totalizing 23.1%; in 70 to 79 years group, 24.6% were male and 15.4% female, total of 40,0%; and in the age group of 80 to 89 years, 13.8% were male and 23.1% female, 36.9% of total. The observed data show that the group that get hospitalized for more time was the male aged from 70 to 79 years.

Regarding hospitalization sectors, 60,0% of the patients were in the ICU, 69.3% in medical clinics and 1.5% in BMT sector. Of the 65 patients studied, 60,0% got hospital discharge, 38.5% progressed to death and 1.5% remains hospitalized.

The main basis diseases diagnosed were Respiratory Failure (16.9%), Cardiac Failure (16.9%), Cerebrovascular Stroke (7.7%), Chronic Renal Failure (6.2%), Cardiomyopathy (4.6%) and Aortic Valve Disfunction (4.6%).

Of the 39 patients in ICU, 35.9% had HI related to CVC. The prevalent HI topographies were: Urinary Tract Infections (33.0%), Bloodstream Infection (32.1%), Pneumonias (16.5%), Cardiovascular Infection (7.3%) and Skin and Soft Tissue Infections (5.5%) totaling 109 infections developed in the period studied. The average of patients admitted per month was 2,019. Zamir et al (2003) reported that the more frequently hospital infection topographies found in their research were related to urinary tract infection (40.8%), pneumonia (32,9%) and sepsis (9.2%). Prade et al (1995) reported in multicentre studies with Brazilian population of several age groups that the topographies were prevalent respiratory infection (28.9%), surgical site (15.6%) and skin (15.5%). Boas and Ferreira (2007) describe that the HI prevalent topographies in their study were respiratory infection (27.6%), urine (26.4%) and the surgical site (23.4%). The found results corroborated with the topographies described in the

literature about respiratory infections, bloodstream infections and urinary tract infection.

With the present study, it may be identified that elderly patients have a higher vulnerability to respiratory, cardiac, neurological and kidney diseases, but also in acquiring hospital infections, because some patients developed more than one hospital infection. It occurs because of the constant exposure to invasive procedures and the use of antimicrobial, which will turn the microorganisms more and more resistant, hindering a faster cure and extending hospitalization's length.

**CONCLUSION**

The occurrence of hospital infection in elderly had prevalence in males and in the age group between 70-79anos. The basis predominant diseases were the respiratory and cardiac failure and the infections developed during hospitalizations were of the urinary tract and the bloodstream, the latter being related to the use of central venous catheter and the presence of pneumonia. The clinical evolution of patients resulted in a greater prevalence of hospital discharge (60,0%), followed by death (38.5%).

The results show that elderly patients are more susceptible to hospital infections of the urinary tract and bloodstream, and by being exposed to more invasive procedures, such as central venous catheter, it becomes more difficult to get a faster cure, extending hospitalization's length.

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**INFECTION IN ELDERLY PATIENTS HOSPITALIZED IN A PRIVATE INSTITUTION IN NATAL/RN**

**ABSTRACT**

Descriptive and retrospective Study that aimed to characterize the occurrence of hospital infection (HI) in 65 elderly patients of a private hospital in Natal / RN. After institutional consent, the data were collected in the National Information System for Infection Control in Health Services (SINAIS) of the Commission of Hospital Infection Control. The variables collected had been: age, sex, length of stay in the institution, status of patients admitted, internship sector, basis disease, central venous catheter (CVC) use, site of hospital infection, hospital infection rate and antimicrobials use. The data were organized in Microsoft Excel software and transported to the SPSS 14.0 program for descriptive and inferential analysis. It was a prevalence of infection in the elderly aged between 70-79 years (40,0%) and male (53.8%). The most frequent basis diseases were the respiratory and cardiac failure, with 16.9% each. The most acquired hospital infections were: in the urinary tract (33.0%), in the bloodstream (32.1%), while 66.6% of them were related to CVC and pneumonia (16.5%). As to the clinical evolution, 60,0% of the patients had hospital discharge, 38.5% died and 1.5% remained hospitalized. The results show that elderly patients are more susceptible to hospital infections for longer remain hospitalized and are more exposed to invasive procedures and use of antimicrobials, hindering a faster cure and extending the length of hospitalization.

KEYWORDS: Hospital infection, Elderly.

**INFECTION DANS LES PERSONNES MALADES ÂGÉS INTERNÉS DANS UNE INSTITUTION DE L'HÔPITAL PRIVÉE À NATAL/RN**

**RESUME**

Il s'agit d'un étude rétrospective descriptive qui a eu l'intention à caractériser l'événement de l'infection dans l'hôpital (IH) dans 65 personnes âgés des malades d'un Hôpital privé à Natal/RN - Brésil. Après consentement institutionnel, les données ont été rassemblés dans le Système National de Renseignements pour le Contrôle d'Infection dans Services de Santé (SINAIS) de la Commission de Contrôle d'Infection dans l'Hôpital. Les variables rassemblées étaient: vieillissez, sexe, temps de permanence dans l'institution, la situation des malades internés, local de l'internement, basse maladie, usage de sonde veinée centrale (CVC), site et taux de l'infection dans l'hôpital et usage de contre microbien. Les données ont été organisés dans une feuille de calcul électronique Excel et ils sont transporté au Programme SPSS 14.0, disponibles pour l'analyses descriptives et de déduction. Il y avait une plus grande fréquence de l'infection dans les personnes âgés dans la tranche d'âge 70 -79 années (40,0%) et sexe masculin (53,8%). Les basses maladies plus fréquentes étaient la respiration et insuffisance du coeur avec 16,9% chacun. Les infections dans l'hôpital le plus acquis étaient: Le traite urinaire (33,0%), courant sanguin (32,1%), à savoir 66,6% relatives à CVC et pneumonie (16,5%). Par rapport à l'évolution clinique, 60,0% du personnel malade avait la libération du l'hôpital, 38,5% est mort et 1,5% séjour ont interné. Les résultats dénotent que les malades âgés sont plus susceptibles aux infections dans l'hôpital car ils restent plus de temps interné et ils sont exposés à procédures de l'invasion et usage d'ante microbien, en entravant une cure plus rapide et prolongeant le temps d'internement.

MOTS-CLES: infection dans l'hôpital, malades âgés.

**INFECCIÓN EN PACIENTES ANCIANOS INTERNADOS EN UNA INSTITUCIÓN HOSPITALAR PRIVADA EN NATAL/RN**

**RESUMEN**

Estudio Descriptivo retrospectivo que objetivó caracterizar la ocurrencia de infección hospitalar (IH) en 65 pacientes ancianos de un Hospital privado en Natal/RN. Tras el consentimiento institucional, los datos fueron recogidos en el Sistema Nacional de Información para el Control de Infección en Servicios de Salud (SINAIS) de la Comisión de Control de Infección Hospitalar. Las variables recogidas fueron edad, sexo, tiempo de permanencia en la institución, situación de los pacientes internados, sector de internamiento, enfermedad de base, uso de catéter venoso central (CVC), sitio y tasa de infección hospitalar y uso del antimicrobianos. Los datos fueron organizados en planilla electrónica Excel y transportados para el Programa SPSS 14.0, para análisis descriptivo e inferencial. Hubo prevalencia de infección en los ancianos con edad entre 70 y 79 años (40,0%) y sexo masculino (53,8%). Las enfermedades de base más frecuentes han sido la insuficiencia respiratoria y cardiaca con 16,9% cada una. Las infecciones hospitalares más adquiridas han sido: tracto urinario (33.0%), corriente sanguínea (32,1%), siendo 66,6% relacionados a CVC y pulmonía (16,5%). En relación a la evolución clínica, 60,0% de los pacientes tuvieron alta hospitalar, 38,5%) óbito y 1,5% permanecen internados. Los resultados denotan que los pacientes ancianos son más susceptibles a las infecciones hospitalares por el hecho de permanecer más tiempo internados y estar más expuestos a procedimientos invasivos y uso de antimicrobianos, dificultando una cura más rápida y prolongando el tiempo de internamiento.

PALABRAS-CLAVE: infección hospitalar, ancianos.

**INFECÇÃO EM PACIENTES IDOSOS INTERNADOS EM UMA INSTITUIÇÃO HOSPITALAR PRIVADA EM NATAL/RN**

**RESUMO**

Estudo descritivo retrospectivo que objetivou caracterizar a ocorrência de infecção hospitalar (IH) em 65 pacientes idosos de um Hospital privado em Natal/RN. Após consentimento institucional, os dados foram coletados no Sistema Nacional de Informação para o Controle de Infecção em Serviços de Saúde (SINAIS) da Comissão de Controle de Infecção Hospitalar. As variáveis coletadas foram: idade, sexo, tempo de permanência na instituição, situação dos pacientes internados, setor de internação, doença de base, uso de cateter venoso central (CVC), sítio e taxa de infecção hospitalar e uso de antimicrobianos. Os dados foram organizados em planilha eletrônica Excel e transportados para o Programa SPSS 14.0, para análises descritiva e inferencial. Houve prevalência de infecção nos idosos com faixa etária 70 -79 anos (40,0%) e sexo masculino (53,8%). As doenças de base mais freqüentes foram a insuficiência respiratória e cardíaca com 16,9% cada uma. As infecções hospitalares mais adquiridas foram: trato urinário (33,0%), corrente sanguínea (32,1%), sendo 66,6% relacionados a CVC e pneumonia (16,5%). Quanto à evolução clínica, 60,0% dos pacientes tiveram alta hospitalar, 38,5% óbito e 1,5% permanecem internados. Os resultados denotam que os pacientes idosos são mais susceptíveis as infecções hospitalares por permanecerem mais tempo internados e estarem mais expostos a procedimentos invasivos e uso de antimicrobianos, dificultando uma cura mais rápida e prolongando o tempo de internamento.

PALAVRAS-CHAVE: infecção hospitalar, idosos.