ABSTRACT

Aim: to have the picture of infectious disease pattern and serum albumin level in elderly people with respiratory tract infection hospitalized at the Internal Medicine Ward, Dr. Moewardi Hospital Surakarta.

Methods: descriptive-retrospective study. Sample was taken from the medical records of patients hospitalized at the Internal Medicine Ward DR. Moewardi Hospital from January to December 2004. Infectious disease includes the ones at the respiratory tract (pulmonary tuberculosis (TB), pneumonia, chronic obstructive pulmonary disease (COPD)), urinary tract infection (UTI), digestive tract infection (gastroenteritis, typhoid fever), and tetanus. Serum albumin level data of patients with respiratory tract infection were taken from the hospital’s laboratory results.

Results: from 337 elderly patients hospitalized at the Internal Medicine Ward DR. Moewardi Hospital Surakarta, proportion of patients aged 70 years or above was 39.17 %, aged 60-64 years old were 37.09%, and 66-69 years were 23.74%. Distribution of diseases according to frequency is respiratory tract infection (66.77%), urinary tract infection (15.73 %), digestive tract infection (15.43%) (12.17%) and tetanus (2.07 %). From 57 elderly with respiratory tract infection, we found 45 individuals (78.95 %) with hypoalbuminemia.

Conclusion: the most common infectious disease found in the elderly hospitalized at Dr. Moewardi Hospital Surakarta is respiratory tract infection. Hypoalbuminemia was found in 78.95% of 57 elderly with respiratory tract infection.

Key words: infectious disease, hypoalbuminemia, elderly.

INTRODUCTION

Aging is a process of gradual decrease in the ability of tissue to repair and maintain normal structure and function, which results in inability to resist against injury including infection, and the process to repair damage. It is related to thymus gland atrophy and decrease of T cell both in cellular number and function, accompanied by increased sensitivity to infection, delayed healing process, and decreased autoimmune mechanism. Infection is the presence of various microorganisms in a man’s body. The microorganism then multiplies itself and causing tissue damage, which is known as an infectious disease.

Predisposing factors or risk factors of having infectious disease in the elderly include inadequate nutrition, decreased organ function, immunodeficiency, comorbidity, virulence of microorganism, and the environment where the elderly receive care such as in the community, hospital, or nursing home. Infectious disease is the cause of 40% of mortality in the elderly. Several studies found that infectious disease in the elderly is mostly found in the respiratory tract system, and is the most common cause of death in the elderly in the coming years, followed by urinary tract disease.

Hypoalbuminemia is caused by protein deficiency and chronic inflammation. Severe hypoalbuminemia ≤ 1.6 g/dl is a bad prognostic sign and an indicator of mortality. The role of albumin is to maintain intravascular coloid osmotic pressure, pH and electrolyte balance, and also transport of metal ion, fatty acid, steroid, hormone, vitamin, mineral, and drugs. Some conditions that result in acute or chronic inability in fighting a disease will affect the individual’s nutritional status and age, especially in an elderly. One of the predisposing factors in the elderly that contributes in infectious disease is undernourishment.

Based on the theory and studies on infectious diseases in the elderly by the experts, infectious disease is said to cause morbidity and even mortality in the...
elderly, especially through respiratory tract disease. Hypoalbuminemia condition could worsen the condition in an elderly with respiratory tract disease. Based on this reason, we would like to find out the pattern of infectious disease in the elderly people hospitalized at Dr. Moewardi Hospital and serum albumin level in the elderly people with respiratory tract disease.

The objective of this study is to have the picture of infectious disease pattern and serum albumin level in elderly people with respiratory tract infection hospitalized at the Internal Medicine Ward, Dr. Moewardi Hospital Surakarta.

METHODS

The study design was descriptive retrospective. The subjects were taken from the medical record of patients hospitalized at the Internal Medicine Ward Dr. Moewardi Hospital from January to December 2004. Infectious disease includes the ones at the respiratory tract (pulmonary tuberculosis (TB), pneumonia, chronic obstructive pulmonary disease (COPD)), urinary tract infection (UTI), digestive tract infection (gastroenteritis, typhoid fever), and tetanus. Serum albumin level data of patients with respiratory tract infection were taken from the hospital’s laboratory result.

RESULTS

From 337 elderly patients hospitalized at the Internal Medicine Ward Dr. Moewardi Hospital Surakarta throughout 2004, we found the proportion of patients aged 70 years or above was 39.17%, 37.09% aged 60-64 years old, and 23.74% aged 65-69 years. Proportion of respiratory tract infection was 66.77%, urinary tract infection was 15.73%, digestive tract infection was 15.43%, and tetanus was 2.07%. The complete information could be seen on Table 1.

Out of 225 patients with respiratory tract infection, data of serum albumin level were only obtained from 57 individuals. Forty-five patients (78.95%) among them had hypoalbuminemia. Other information is listed on Table 2.

DISCUSSION

In this study, in 337 elderly patients we found 39.18% patients ≥ 70 years of age, 37.08% patients aged 60-64 years (37.08%), and 23.74% patients aged 66-70 years. This is due to decreased normal body structure and function, and contributing risk factors such as inadequate nutrition. Risk factors for infectious disease in the elderly are: inadequate nutrition, decreased immunity, decreased organ function, comorbidity, virulence of microorganism, and the environment where the elderly receive care such as in the community or hospital.

In this study, respiratory tract infection is most commonly found in the elderly (66.76%) compared to other infectious diseases such as urinary tract infection (15.73%), digestive tract infection (15.44%) and tetanus (2.07%). As we already know, the elderly experience changes in anatomy and physiology of respiratory system including shape and size of the chest, respiratory muscle weakness due to atrophy, decreased
bronchial, alveolar, and collagen structure elasticity, and reduced pulmonary parenchymal tissue elasticity. Every individual will experience some loss of pulmonary function along with the increasing age.5,12

Inadequate nutrition in elderly patients will cause decreased immunity, especially the cellular immunity. As a result, they are prone to respiratory tract infection. Respiratory tract infection in the elderly is caused by decreased nutritional status, progressive immunodeficiency in CD 8 cells, T cells, and interferon gamma (INFγ) synthesis.13 Serum albumin level in 57 elderly patients with respiratory tract disease found 45 (78.95%) patients with hypoalbuminemia. Hypoalbuminemia will cause deficient immunity in elderly patients, making them prone to infectious diseases such as the respiratory tract, urinary tract, digestive tract, and others. Undernourished condition is often accompanied by changes in eating pattern, digestion, and metabolism.10 Continuous change in eating pattern will cause some loss in body weight. The Framingham Study in the National Health and Nutrition Examination Survey (NHANES-19) found that 16-18% of individuals over 60 years of age consume energy less than 1000 kcal/day (4148 kj). Marton et al and Rabinovitz, et al reported that loss in body weight and cachexia could serve as a prediction for morbidity and mortality.14

The data in this study are collected only in one year. There is currently no specific information comparing the pattern of infectious disease in the elderly in previous years, and the significance of infectious disease development in the elderly the year after. Infectious disease in the elderly is related to comorbidity, risk factors, virulence of microorganism, and the living environment, which needs further and deeper analyses. Hypoalbuminemia in the elderly with respiratory tract infection requires more samples compared to other types of infectious disease.

CONCLUSION

The most common infectious disease found in the elderly hospitalized in DR. Moewardi Hospital Surakarta is respiratory tract disease. Serum albumin level of the elderly with respiratory tract disease measured from 57 individuals shows hypoalbuminemia in 78.95% of patients.

REFERENCES