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Causes of hospitalization among amputees who evolved to death

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Abstract

Background: Peripheral arterial disease (PAD), a major cause of disability and critical limb ischemia is the end stage of peripheral arterial occlusive disease, with a deep impact in patient's quality of life.

Aim: The aim of this study was to evaluate the causes of rehospitalization of major lower limb amputees who died.

Method: In a cohort study the causes of hospitalization of all amputees who died between January 2005 and January 2007 in Base Hospital, Medicine School in Sao Jose do Rio Preto (FAMERP) were evaluated in a retrospective quantitatively study. Amputees who suffered amputation of the arm and minor amputations were excluded. The diagnosis at admission was evaluated and only those who were hospitalized after one month of amputation and died were included in this study. The study was approved by the Research Ethics Committee of FAMERP. Percentages were used for statistical analysis.

Results: There were 231 amputations in this period; 25 patients were re-hospitalized after one month of the amputation and died. For 10 (40%) patients the cause of death was pulmonary complications, in 5 (20%) due to another amputation, in 5 (20%) to kidney problems, 2 (8%) due to cerebral hemorrhages, in one (4%) due to an ischemic stroke, one (4%) to intestinal obstruction and one (4%) secondary to sepsis.

Conclusion: Disease of the circulatory system was the main cause of death; second limb amputations are an important cause of mortality.

Keywords: Peripheral arterial disease, amputation, mortality.

Introduction

Peripheral arterial disease (PAD), a major cause of disability, loss of work and lifestyle changes in the United States, is defined as obstruction of blood flow into an arterial tree excluding the intracranial or coronary circulations[1].

Critical limb ischemia is the end stage of peripheral arterial occlusive disease, with a deep impact in patient's quality of life[2,3]. Peripheral vascular disease (PVD) is the etiology responsible for most non-traumatic amputations of limbs; 80% of these patients have diabetes mellitus (DM)[1,2]. Moreover, the presence of diabetes increases the risk of leg amputation by 9-fold[3].

Patients with coronary artery disease, just like other chronically ill patients, are more susceptible to readmissions, either because of relapse of the original clinical condition or the appearance of new clinical problems[7]. Moreover patients hospitalized for long periods

have higher hospital readmission rates, mainly due to complications of the earlier disease[8]. One study reported that mortality on rehospitalization within the first month post-amputation is 9.9%[10].

The aim of this study was to evaluate the causes of rehospitalization of major lower limb amputees who died.

Method

In a cohort study the causes of hospitalization of all amputees who died between January 2005 and January 2007 in Base Hospital, Medicine School in Sao Jose do Rio Preto (FAMERP) were evaluated.

The inclusion criteria were all patients submitted to major lower extremity amputation in the period, that is, patients submitted to minor amputations or arm amputations were not included.

The diagnoses at admission of these patients were considered in the study and only those who were hospitalized more than one month after amputation and died were evaluated.

The study was approved by the Research Ethics Committee of FAMERP. Percentages were used for statistical analysis.

Results

There were 231 amputations in this period; 25 patients were re-hospitalized after one month of the amputation and died. The ages of the 15 (60%) male and 10 (40%) female patients that died ranged from 42 to 85 years old with a mean age of 73.4 years. These patients were readmitted a total of 42 times giving a mean of 1.7 per patient. For 10 (40%) patients the cause of death was pulmonary complications, in 5 (20%) it was due to another amputation, in 5 (20%) to kidney problems, in 2 (8%) to cerebral hemorrhages, in one (4%) due to an ischemic stroke, one (4%) to intestinal obstruction and one (4%) secondary to sepsis.

Discussion

This study highlights the leading causes of death after the readmission of major amputees, where lung diseases were responsible for most of the deaths, followed by peripheral ischemia and renal involvement. Deaths at home were not evaluated in this study which may explain the absence of cardiac involvement in this group. Causes due to heart failure are the main cause of mortality within the first thirty days after amputation[10].

In Brazil, in 2006, hospitalizations for circulatory diseases accounted for 22.83% of total admissions and for respiratory system involvement 13.42%; these were the two main causes of admissions in the country[11], similar to the findings of this study. Another fact to consider is the average life expectancy in the region which is 72 years old for men and 76 for women. Hence, the mean age of the patients who died in this study (73.4 years) was very close to the average life expectancy for the population of São Paulo (73.66 years) and Brazil (72.05 years) in the period[11]. Therefore, arterial disease in this group of patients did not affect the average life expectancy.

An investigation in the same service as the current study showed a mortality rate due to major lower limb amputation of 5.7% on the surgical ward, 15.7% within the first postoperative month, 44% within the first year after amputation, 50% in the second and 72% in the sixth year[9,11]. An important aspect is that amputation interferes in the quality of life of these patients[13]. Twenty percent of patients who died initially survived hospital mortality of the first amputation but were re-hospitalized for a second amputation. In the first month the mortality rate associated to readmissions in the service was 9.9%[9], and during this period hospital infections of the amputation stump were responsible for a mortality rate of 28%[14]. Therefore, infectious complications and cardiovascular diseases were

the major causes of morbidity and mortality in these patients.

However, cerebral bleeding in 8% of patients was data that caught the attention while cerebral ischemia occurred in 4%. This fact suggests that further studies should be made on the use of antiplatelet drugs which is part of the clinical approach of these patients.

Conclusion

Diseases of the circulatory system and infections were the main causes of death where the second limb amputation of major amputees constitutes an important cause of mortality.

References

1. Lewis SJ. Prevention and treatment of atherosclerosis: a practitioner's guide for 2008. Am J Med 2009;122(1):38-50.
2. Lara-Hernández R, Lozano-Vilardell P, Cordobés-Gual J. Novel therapies of non-revascularizing peripheral arterial occlusive disease: therapeutic angiogenesis. Med Clin (Barc) 2008;131(17):665-9
3. Gardner AW, Afaq A. Management of lower extremity peripheral arterial disease. J Cardiopulm Rehabil Prev 2008;28(6):349-57.
4. Dillingham TR, Pezzin LE, MacKenzie EJ. Limb amputation and limb deficiency: epidemiology and recent trends in the United States. South Med J 2002; 95: 875–883.
5. Eneroth M, Larsson J, Apelqvist J. Deep foot infections in patients with diabetes and foot ulcer an entity with different characteristics, treatments and prognosis. J Diab Comp 1999;13:254-63.
6. Wrobel JS, Mayfield JA, Reiber GE. Geographic variation of lower-extremity major amputation in individuals with and without diabetes in the Medicare population. Diabetes Care 2001; 24: 860–864.
7. Williams EI, Fitton F. Factors affecting early unplanned readmission of elderly patients to hospital. BMJ1988: 297(6651): 784-787.
8. Baisden CE, Bolton JW, Riggs MW. Readmission and mortality in patients discharged the day after off pump coronary bypass surgery. Ann. Thorac. Surg., 2003; 75(1): 68-73.
9. de Godoy JMP, Ribeiro JV, Caracanhas LA. Hospital Mortality After Major Amputation of the Lower Limbs for Critical Ischemia. The Open Atherosclerosis & Thrombosis Journal, 2009; 2: 4-5
10. Aulivola B, Hile CN, Hamdan AD, Sheahan MG, Veraldi JR, Skillman JJ, et al. Major Lower Extremity Amputation: Outcome of a Modern Series. Archives of Surgery 2004;139:395–9.
11. Brasil, Ministério da Saúde, Departamento de Informática do SUS. DATASUS [site na internet]. http://www.datasus.gov.br/datasus/datasus.php
12. Godoy MF, Batigalia F, Trávolo AR, Monteiro EH. Lower-extremity amputation: a 6-year follow-up study in Brazil. J Orthop Surg (Hong Kong) 2005;13(2):164-6.
13. Godoy JMP, Braile DM, Buzatto SHG, Longo O, Fontes OA. Quality of life after amputation. Psychol Health Med 2002;(7):397-400.
14. de Godoy JMP, Vasconcelos JR, Caracanhas LA, Godoy MFG. Hospital infection after major amputations. Ann Clin Microbiol Antimicrob. 2010 May 19;9:15.