03 - TREND ANALYSIS OF PROPORTIONAL MORTALITY FROM CARDIOVASCULAR DISEASE MACAÉ, 1996-2011.

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INTRODUCTION

Chronic non-communicable diseases (CNCD) are the leading cause of morbidity and mortality in Brazil (PASSOS et al., 2006). In 2009, CNCDs were responsible for 72.4% of deaths, while 80.7% of these deaths were directly linked to the four main groups of CNCDs, they are: cardiovascular diseases (CVD), diabetes, tumors and chronic respiratory diseases) (Duncan et al., 2012). Environmental factors are responsible for such high rates, such as smoking, alcohol, dietary pattern due to the high consumption of food which is rich in fat and sodium (MONTEIRO et al., 2005).

Among the CNCDs, we highlight the CVD which are the main cause of death in many developed and developing countries, highlighting systemic arterial hypertension (SAH) as the major disease of the cardiovascular system. The SAH is closely related to the presence of other CVD, such as coronary artery disease (CAD), congestive heart failure (CHF), ischemic and hemorrhagic cerebrovascular accident (CVA), renal failure, among others. Approximately 7.6 million deaths (13-15% of total) worldwide were attributed to hypertension in 2001 (LONGO et al., 2013).

In Brazil, CVD are still one of today's most important health problems, corresponding to the first cause of death in all regions of the country, in both sexes. They are responsible for 31.8% of total deaths and 10% of hospitalizations followed by external causes and cancer, respectively. They are responsible for high frequency of hospitalization, addition to high demand of human and financial resources. An example of this is that only in November 2009 91.970 hospitalizations were made due to CVD, generating a cost of R$ 165,461,644.33 for the Unified Health System – SUS (VI BRAZILIAN GUIDELINES OF HYPERTENSION, 2010).

Besides that the CVD are relevant in numbers of deaths and hospital admissions, such diseases account for the most prevalent cause of early retirement and permanent working disability in the state public service of Rio de Janeiro, with special emphasis on hypertension and its strong association with other CVD (BESSER et al., 2006). In Brazil, approximately 300,757 disability retirements and 144,984 temporary disability benefits due to CVD, which constitute 30% of the estimated number of cases of severe CVD in the age group between 35 and 64 years (AZAMBUJA et al., 2008).

The present study aimed to analyze the trend of proportional mortality from CVD in the city of Macae, between 1996 and 2011.

CASUISTRY METHOD

We conducted a study of time series on proportional mortality from CVD in the period 1996-2011.

Secondary data on deaths by residence, by ICD-10 Chapter were collected from the MS/ SVS/DASIS - Mortality Information System - SIM/Macaé.

We calculated the linear trend analysis of the proportional mortality from CVD and the data were presented in tabular form.

The Data were authorized for analysis and dissemination of the results by the Municipal Health Secretariat of Macaé, in 2013.

RESULTS AND DISCUSSION

The proportional mortality between the years 1996 and 2011 is presented in Table 1. It turned out that in 1996, the proportional mortality from CVD was 32.38; in 1997 it was 26.61; in 1998 it was 30.35; in 1999 it was 34.30; in 2000 it was 31.38; in 2001 it was 30.5; in 2002 it was 30.77; in 2003 it was 29.17; in 2004 it was 27.87; in 2005 it was 28.44; in 2006 it was 27.13; in 2007 it was 25.87; in 2008 it was 24.73; in 2009 it was 29.61; in 2010 it was 27.0; 2011 it was 26.47.

Table 1. Proportional mortality between the years 1996 and 2011, MS/SVS/DASIS – Information System on Mortality – SIM/Macaé.

Year	Proportional mortality
1996	32,38
1997	26,61
1998	30,35
1999	34,30
2000	31,38
2001	30,5
2002	30,77
2003	29,17
2004	27,87
2005	28,44
2006	27,13
2007	25,87
2008	24,73
2009	29,61
2010	27,0
2011	26,47

The analyzed data show a downward trend in proportional mortality from CVD, but it is still the first cause of death in the city of Macaé. This decrease from 1996 to 2011 may be related to greater accessibility to health services due to increased coverage and quality of primary care in the city of Macaé (personal communication, Raquel Miguel Rodrigues). As a result, there may be increased opportunities for prevention of risk factors and decreased CVD mortality.

The results of this study differ from those found by Cease et al. (2009) to evaluate the trend of CVD mortality in Brazilian capitals, between 1950 and 2000, it was found that, even with the fluctuation of the data, the proportional mortality from

CVD has been increasing over the period. The authors observed that in many of the capitals, the proportional mortality from coronary artery diseases increased until 1991 and then decreased until the end of 2000, mainly in the capitals of the Southeast and South regions of Brazil. However, the highest proportional variations were verified in the capitals of the North, Northeast and Midwest regions of Brazil.

Some data from the last decade show the size of the impact that CVD have on population health and public coffers. In 2003, CVD were responsible for 27.4% of all deaths in the age group between 35 and 64 years and 35.9% of deaths in the population over 64 years. In 2004, the Brazilian government spent on hospitalizations for CVD, R $ 1,139,363,988.84 (AZAMBUJA et al., 2008).

Currently, it is known that mortality from CVD increases progressively with increased blood pressure from 115/75 mm Hg, in a linear and continuous way. According to the "VI Brazilian Guidelines on Hypertension", SAH is conceptualized as being a "multifactorial clinical condition characterized by high and sustained levels of blood pressure (BP)." Hypertension is associated with structural and/or functional changes in target organs such as heart, blood vessels, kidneys and encephalon which greatly increasing the risk of developing CVD. (VI BRAZILIAN GUIDELINES OF HYPERTENSION, 2010).

The risk factors for the development of hypertension and hence CVD are age, gender, ethnicity, overweight and obesity, salt intake and alcohol, smoking, psycho-emotional stress, inactivity and some hereditary diseases (e.g. Cushing's syndrome and Pheochromocytoma). However, most of these risk factors are modifiable; thus, the identification and control of these factors, especially those related to changes in lifestyle of people (non-drug measures), are of fundamental importance in controlling hypertension (GAWRYSZEWSKI & SOUZA, 2014; MUNIZ et al., 2012; MENDIS et al., 2011). When these measures are not enough to control blood pressure, we use the drug treatment which is an important treatment of CVD (VI BRAZILIAN GUIDELINES OF HYPERTENSION, 2010).

It is consensus that hypertension develops through genetic factors associated with environmental factors/lifestyle. The main risk factors for the development of hypertension, according to the VI Brazilian Guidelines on Hypertension (2010), developed by the Brazilian Cardiology Council are:

- Age: The age has a direct and linear relationship with the BP, and in Brazil, more than 60% of individuals over 65 have hypertension. With the life expectancy of the Brazilian population rising, the age has become an important risk factor.
- Genre: SAH is slightly more prevalent in men by the age of 50, reversing after the 5th decade of life.
- Color/race: SAH is twice as prevalent in individuals of non-white color.
- Overweight/obesity: are strong risk factors for the development of hypertension. Desired goals are individuals with body mass index (BMI) less than 25 kg/m² and less than 102 cm waist circumference in men and less than 88 cm in women. It is estimated that globally, about 60% of hypertensive people are at least 20% above normal weight.
- Salt intake: a diet high in salt is one of the main risk factors found in the population of developed and developing countries. The Brazilian population fits this profile, making intake of food high in salt, sugar and fat. Recently, the World Health Organization (WHO) established 5 grams of sodium chloride (table salt) as the maximum amount considered healthy for sodium intake.
- Alcohol consumption: alcohol intake for an extended period can lead to increased blood pressure, as well as cardiovascular mortality. It is a prevalent risk factor in Brazil, due to the high intake of ethanol by the Brazilian population.
- Sedentary lifestyle: regular physical activity reduces the incidence of hypertension, including those pre-hypertensive individuals.
- Socioeconomic factors: although it is difficult to determine a relationship of socioeconomic status with hypertension, in Brazil, studies show that it is greater in individuals with less education.
- Genetics: despite being well established the contribution of genetic factors to the genesis of hypertension, it is not yet possible to determine these genetic variations. However, it is assumed that in most hypertensive individuals, it is likely that SAH is due to a polygenic disorder.

In a general context, SAH occurs through the combined individual's genetic predisposition to environmental factors to which it is exposed, that is, one or more associated risk factors (GAWRYSZEWSKI & SOUZA, 2014). As many of the risk factors for development of hypertension, and consequently CVDs are modifiable, it is necessary that the Unified health system (SUS) invests in early detection and primary prevention of hypertension, especially modifying these risk factors. In the present scenario, the implementation of these measures of primary prevention shows up the big challenge for the government as well as for the healthcare employees.

Currently, with the changes in habits of people and to therapy with anti hypertensive drugs, the risks of CVDs have been reduced, which reflects a declining trend in cases of this group of diseases detected in more developed countries. Yet, large segments of the hypertensive population are either not treated or are treated improperly (LONGO et al., 2013).

To promote prevention and/or appropriate treatment of arterial hypertension, it is necessary to obtain an adequate medical history of the individual, with particular attention to the risk factor that this individual is exposed to, as well as whether it has conducted some hypertension pretreatment.

The prevention and care of CVD can be performed in two ways: non-drug measures and remedial measures. The choice of appropriate therapy varies greatly from individual to individual, being directly related to blood pressure levels of each individual (Table 2), its characteristics, risk factors to which it is exposed, and presence or absence of target organ damage (VI BRAZILIAN GUIDELINES OF HYPERTENSION, 2010).

Table 2. Classification of blood pressure according to the casual measurement in the consulting room (> 18 years).

Classification	systolic pressure (mm Hg)	diastolic pressure (mm Hg)
Great	< 120	< 80
Normal	< 130	< 85
Bordering	130-139	85-89
Stage 1 hypertension	140-159	90-99
Stage 2 hypertension	160-179	100-109
Stage 3 hypertension	≥ 180	≥ 110
Isolated systolic hypertension	≥ 140	< 90

When the systolic and diastolic pressures are set in different categories, the higher should be used to classify the blood pressure.

Source: VI BRAZILIAN GUIDELINES OF HYPERTENSION (2010).

Non-drug measures consist of changes in habits of life (primary prevention) combating thus “modifiable” risk factors: smoking, obesity, salt intake and alcohol, sedentary lifestyle. Among these measures, we can highlight the implementation of healthy and balanced eating, controlled sodium and alcohol intake, regular physical activity, combating smoking (DUNCAN et al., 2012).

Pharmacological treatment (remedial measures) of hypertension is very broad and varies from individual to individual. Currently, there are many anti hypertensive medications, they may be used alone or in combination with one or more anti hypertensive drugs.

In Individuals who have not very high blood pressure levels, it is recommended that treatment initiation is done through non-pharmacological measures, and only when there is no success, drug therapy begins. However, it is essential that non-pharmacological measures are not "abandoned" using anti hypertensive (VI BRAZILIAN GUIDELINES OF HYPERTENSION, 2010).

In Brazil, the Ministry of Health elaborated, in 2011, the Strategic Action Plan for Confronting Chronic Noncommunicable Diseases to promote the development and implementation of effective, integrated, sustainable public policies and evidence-based prevention and control of CNCDs and their risk factors, in a period of ten years this plan will allow the government to reach the four main groups of CNCDs and their common modifiable risk factors. The plan outlines actions and guidelines, divided into three segments: (a) surveillance, reporting, evaluation and monitoring; (b) health promotion; (c) comprehensive care (BRASIL, 2011).

There are many studies on hypertension and CVD worldwide, however, in Brazil, there is a need for broader studies to plot the health situation of the Brazilian population more reliably, considering ethnic, age, economic and cultural diversity of Brazil, which probably imply different risk factors for CVD, which in turn give rise to different approaches and therapeutic procedures.

CONCLUSION

There is a downward trend in proportional mortality from CVD, but it is still representing the leading cause of death in the city of Macaé, Rio de Janeiro. Yet, actions are needed to maintain the prevention of CVDs and intervention in their determining factors in society.

Understanding the lifestyle that encompasses the risk factors is the key factor to be fought, because it is present in most sick people and requires a permanent shift in how we live, forgoing rooted customs.

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TREND ANALYSIS OF PROPORTIONAL MORTALITY FROM CARDIOVASCULAR DISEASE MACAÉ, 1996-2011.

ABSTRACT

In Brazil, cardiovascular diseases (CVD) are still one of today's most important health problems, corresponding to the first cause of death in all regions of the country, in both sexes. This study aimed to analyze the trend of proportional mortality from CVD in the city of Macaé, between 1996 and 2011. We conducted a study of time series on proportional mortality from CVD in the period 1996-2011. Secondary data on deaths by residence, by ICD-10 Chapter, were collected from the MS/SVS/DASIS – Mortality Information System – SIM/Macaé. We conducted the linear trend analysis of proportional mortality from CVD. It turned out that in 1996, the proportional mortality from CVD was 32.38; in 1997 it was 26.61; in 1998 it was 30.35; in 1999 it was 34.30; in 2000 it was 31.38; in 2001 it was 30.5; in 2002 it was 30.77; in 2003 it was 29.17; in 2004 it was 27.87; in 2005 it was 28.44; in 2006 it was 27.13; in 2007 it was 25.87; in 2008 it was 24.73; in 2009 it was 29.61; in 2010 it was 27.0; in 2011 it was 26.47. We conclude that there is a downward trend in proportional mortality from CVD, but is still representing the leading cause of death in the city of Macaé, Rio de Janeiro.

KEYWORDS: Diseases of the Circulatory System, Mortality Ratio, Public Health.

ANALYSE DES TENDANCES DE MORTALITÉ PROPORTIONNELLE PAR MALADIES CARDIOVASCULAIRES MACAÉ, 1996-2011.

RÉSUMÉ

Au Brésil, les maladies cardiovasculaires (MCV) sont encore l'un des problèmes de santé les plus importants d'aujourd'hui, correspondant à la première cause de mortalité dans toutes les régions du pays, dans les deux sexes. Cette étude visait à analyser la tendance de la mortalité proportionnelle par MCV dans la ville de Macaé, entre 1996 et 2011, nous avons effectué une étude de séries chronologiques sur la mortalité proportionnelle par MCV dans la période 1996-2011. Données secondaires sur les décès par résidence, par la CID-10 Chapitre, ont été collectées à partir de la MS/SVS/DASIS - Mortalité Système d'information - SIM/Macaé. Nous avons effectué l'analyse de tendance linéaire de la mortalité proportionnelle par MCV. Il s'est avéré que, en 1996, la mortalité proportionnelle par MCV était 32.38; en 1997, il était de 26,61; en 1998, il était de 30,35; en 1999 il était de 34,30; en 2000, il était 31.38; en 2001 il était de 30,5; en 2002, il était de 30,77; en 2003, il était 29.17; en 2004 il était de 27,87; en 2005, il était 28.44; en 2006, il était de 27,13; en 2007 il était de 25,87; en 2008, il était de 24,73; en 2009, il était de 29,61; en 2010 il était de 27,0; en 2011, il était de 26,47. Nous concluons qu'il existe une tendance à la baisse de la mortalité proportionnelle de maladies cardiovasculaires, mais représente toujours la principale cause de décès dans la ville de Macaé, Rio de Janeiro.

MOTS-CLÉS: Maladies de l'appareil circulatoire, taux de mortalité, de la santé publique.

ANÁLISIS DE TENDENCIAS DE LA MORTALIDAD PROPORCIONAL DE ENFERMEDAD CARDIOVASCULAR MACAÉ, 1996-2011.

RESUMEN

En Brasil, las enfermedades cardiovasculares (ECV) son todavía uno de los más importantes problemas de salud de hoy en día, lo que corresponde a la primera causa de muerte en todas las regiones del país, en ambos sexos. Este estudio tuvo como objetivo analizar la tendencia de la mortalidad proporcional por ECV en la ciudad de Macaé, entre 1996 y 2011 se realizó un estudio de series temporales en la mortalidad proporcional por ECV en el período 1996-2011. Datos secundarios sobre las muertes por residencia, por la CID-10 Capítulo, se obtuvieron de la MS/SVS/DASIS - Sistema de Informaciones sobre Mortalidad - SIM/Macaé. Hemos llevado a cabo el análisis de la tendencia lineal de la mortalidad proporcional por ECV. Resultó que en 1996, la mortalidad proporcional por ECV era 32.38; en 1997 era de 26.61; En 1998 ascendió a 30,35; en 1999 fue 34,30; en 2000 fue 31,38; en 2001 era de 30,5; en 2002 fue 30,77; en 2003 fue 29,17; en 2004 fue 27,87; en 2005 fue 28,44; en 2006 fue 27,13; en 2007 fue 25,87; en 2008 fue 24,73; en 2009 fue de 29.61; en 2010 fue 27,0; en 2011 era 26,47. Llegamos a la conclusión de que hay una tendencia a la baja en la mortalidad proporcional por ECV, pero aún representa la principal causa de muerte en la ciudad de Macaé, Río de Janeiro.

PALABRAS CLAVE: enfermedades del aparato circulatorio, Razón de Mortalidad, Salud Pública.

ANÁLISE DA TENDÊNCIA DA MORTALIDADE PROPORCIONAL POR DOENÇAS CARDIOVASCULARES NO MUNICIPIO DE MACAÉ, 1996-2011.

RESUMO

No Brasil, as doenças cardiovasculares (DCV) ainda são um dos mais importantes problemas de saúde da atualidade, correspondendo à primeira causa de óbito em todas as regiões do país, em ambos os sexos. Objetivou-se analisar a tendência de mortalidade proporcional por DCV no município de Macaé, entre 1996 e 2011. Realizou-se um estudo de série temporal, sobre a mortalidade proporcional por DCV, no período de 1996-2011. Os dados secundários de óbitos ocorridos por residência, por Capítulo CID-10, foram coletados do MS/SVS/DASIS – Sistema de Informações sobre Mortalidade – SIM/Macaé. Realizou-se a análise de tendência linear da mortalidade proporcional por DCV. Detectou-se que no ano de 1996, a mortalidade proporcional por DCV foi de 32,38; em 1997 foi de 26,61; em 1998 foi de 30,35; em 1999 foi de 34,30; em 2000 foi de 31,38; em 2001 foi de 30,5; em 2002 foi de 30,77; em 2003 foi de 29,17; em 2004 foi de 27,87; em 2005 foi de 28,44; em 2006 foi de 27,13; em 2007 foi de 25,87; em 2008 foi de 24,73; em 2009 foi de 29,61; em 2010 foi de 27,0; 2011 foi de 26,47. Conclui-se que há uma tendência decrescente da mortalidade proporcional por DCV, mesmo representando a primeira causa de óbito no município de Macaé, Rio de Janeiro.

PALAVRAS-CHAVE: Doenças do Aparelho Circulatório, Mortalidade Proporcional, Saúde Coletiva.