Admissions to an Internal Medicine Department Differences in a ten-year interval (1984 – 1994)

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Abstract

Reviewing the admissions in an Internal Medicine ward in 1984 and 1994, the authors verified some important differences between the casuistry of the two series analyzed:

1. A significant rise on the rate of admissions in male patients between 21 and 30 years old (2.4% in 1984 and 5.4% in 1994, $p<0.001$) due to a higher number of infectious disease cases, including AIDS cases not found in 1984.

2. A fall in the rate of admissions between 41 and 50 years (11.6% in 1984 and 7% and 1994) and between 51 and 60 years (21.9% in 1984 and 13% in 1994); this fall was higher in the male gender and it is likely to be due to the smaller number of chronic hepatic disease cases in male patients (9.4% in 1984 and 3.8% in 1994, $p<0.,05$).

3. A significant rise of the rate of admissions of patients 81 years of age or more ($p<0.001$), because of general aging of the population.

Key words: admissions, Internal Medicine, AIDS, chronic hepatic disease, elderly population.

Introduction

There is little doubt that the range of diseases affecting man has altered over time. Some of these diseases have "reappeared" and then, after a period of greater or lesser expansion, are thought to have disappeared completely. Others have become transformed, whether in terms of the clinical manifestations, or their severity. Factors contributing to this may include, in first place, the natural history of diseases, which may become extinct as a natural process of their evolution - as probably occurred with the epidemics of ancient times.[1] But other factors, like the forms of productive and social organization,[2] diets, population migrations, changes in lifestyle, and technical progress[3] have, without doubt, a decisive influence on the types of diseases that are predominant in the various periods of Human history.

In the last fifty years, with the appearance of antibiotics, the development of transport, the increasing mobility of individuals, changes in sexual habits and behaviors, and the consumption of drugs, and with the aging of the populations, multiple variables have been introduced to western society, altering the morbidity and mortality statistics. In fact, there are some signs that these changes have lately undergone a significant acceleration, and can be detected in relatively short periods of time.

This work is a comparative study of admissions to an Internal Medicine service, in the years 1984 and 1994, in order to compare the casuistic over a ten-year time-span, and attempt to explain the differences found.

Materials and Methods

1175 processes were reviewed from 1984, and 1305 processes from 1994, corresponding to all the admissions to the Medical Service 1 of the Hospital de Santo Antonio dos Capuchos (HSAC), for those respective years.

For each clinical process, the following data were recorded: age, sex, and main diagnosis.

In the analysis of the two periods studied, the methodology applied was as follows:

1. Distribution of admissions by sex and age group.
2. Record of the main diagnosis: This is the main diagnosis of each process in cases where there is no doubt as to the most important pathology; in cases where

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TABLE I

Distribution of admissions by age and gender, in absolute numbers and percentages (1984)

Decades	Total	Men	Women
11 - 20 years	23 (1.9%)	15 (1.2%)	8 (0.8%)
21 - 30 years	44 (3.7%)	28 (2.4%)	16 (1.4%)
31 - 40 years	61 (5.2%)	37 (3.7%)	24 (2.0%)
41 - 50 years	136 (11.6%)	91 (7.7%)	45 (3.8%)
51 - 60 years	257 (21.9%)	177 (15.1%)	80 (6.8%)
61 - 70 years	244 (20.8%)	147 (12.5%)	97 (8.3%)
71 - 80 years	293 (24.9%)	177 (15.1%)	116 (9.9%)
81 - 90 years	106 (9.2%)	43 (3.7%)	65 (5.5%)
>90 years	9 (0.8%)	2 (0.1%)	7 (0.8%)
	1175 patients	717 (61%)	468 (39%)

TABLE II

Distribution of admissions by age and gender, in absolute numbers and percentages (1994)

Decades	Total	Men	Women
11 - 20 years	30 (2.3%)	21 1.6%)	9 (0.7%)
21 - 30 years	93 (7.1%)	71 (5.4%)	22 1.7%)
31 - 40 years	67 (5.2%)	53 (4.1%)	14 1.0%)
41 - 50 years	91 (7.0%)	67 (5.1%)	24 1.8%)
51 - 60 years	170 (13.0%)	124 (9.5%)	46 3.5%)
61 - 70 years	286 (21.9%)	182 (13.9%)	104 8.0%)
71 - 80 years	324 (24.8%)	174 (13.3%)	150 11.5%)
81 - 90 years	221 (16.9%)	95 (7.3%)	126 9.7%)
>90 years	23 (1.8%)	10 (0.8%)	13 1.0%)
	1305 patients	797 (61.1%)	508 38.9%)

there is doubt, each process was discussed separately by the group of researchers, to obtain a consensus as to the main diagnosis; if there were indications that AIDS and CHD had an influence on the differences observed in the case studies, these two diseases were always considered jointly as the main diagnosis, even if they were associated with other pathologies.

3. Distribution of the diagnoses into the following nosological groups:

a) Infectious diseases (not including urinary infections and pneumonias)

b) Diseases of the respiratory system

c) Diseases of the digestive system, including chronic hepatic disease (CHD), which was also counted separately.

d) Cardiovascular diseases, including cerebral vascular accident (CVA), which was also counted separately.

e) Endocrine diseases

f) Intoxications

g) Other pathologies

4. Besides DHC and CVA, cases of tuberculosis and drug dependence were also counted separately (independently of whether or not they were the 1st diagnosis, or included in the other groups), in order to study the variations found in each of these types of pathology.

5. The diagnoses in the various age groups were compared, particularly those in which a significant variation in the percentage of admissions was registered for the periods studied.

6. All the percentages were calculated, for a total sample of 1175 patients in 1984 and 1305 patients in 1994.

7. In the study of variables, the c^2 test was use for a level of significance of 0.05.

Results

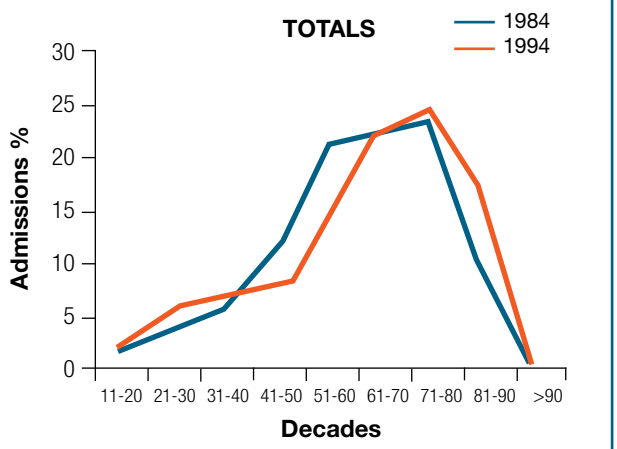
1. Of the 1175 admissions in 1984, 458 (39%) were female and 717 (61%) were male. In 1994, the distribution of the 1305 admissions by sex was similar: 508 women (38.9%) and 797 men (61.1%).

2. In terms of age distribution, a comparison of the admission figures showed the following data (*Table 1 and 2, Figs. 1, 2 and 3*):

a) A significant increase in the percentage of admissions of patients aged between 21 and 30 years, for males (2.4% in 1984 and 5.4% in 1994, $p< 0.01$); for females, the percentage remained stationary in this age group;

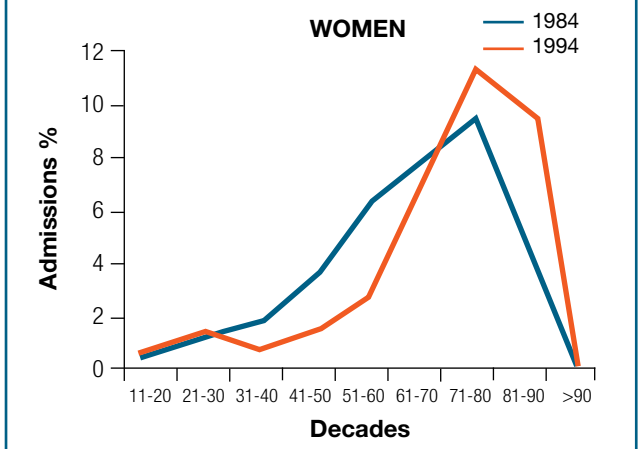
b) A significant decrease in the percentage of admissions of patients aged between 41 and 50 years (11.6% in 1984 and 7% in 1994) and between 51 and 60 years (21.9% in 1984 and 13% in 1994). This decrease, which was more accentuated between the ages of 51 and 60 was more significant, in this age group, among males ($p < 0.001$) than females ($p < 0.01$);

c) An increase in the percentage of admissions of patients aged between 81 and 90 years (9.2% in 1984 and 16.9% in 1994) ($p < 0.01$);



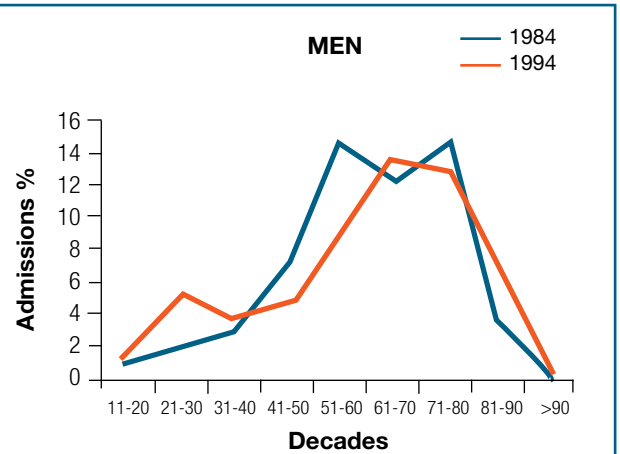
Distribution Curves for admissions by age group.

FIG. 1



Distribution Curves for admissions by age group.

FIG. 3



Distribution Curves for admissions by age group

FIG. 2

d) An increase in the percentage of admissions of patients aged over 90 years (0.75% in 1984 and 1.76% in 1994), for which no significant figure exists, due to the very small number of cases in both series.

3. Analysis of the nosological groups in 1984 and 1994 revealed the following (*Figs. 4, 5 and 6*):

a) The percentage of admissions due to cardiovascular, respiratory and endocrine diseases remained stationary; the decrease seen in CVA was not statistically significant (20.4% in 1984 and 15.9% in 1994) (*Table 3*);

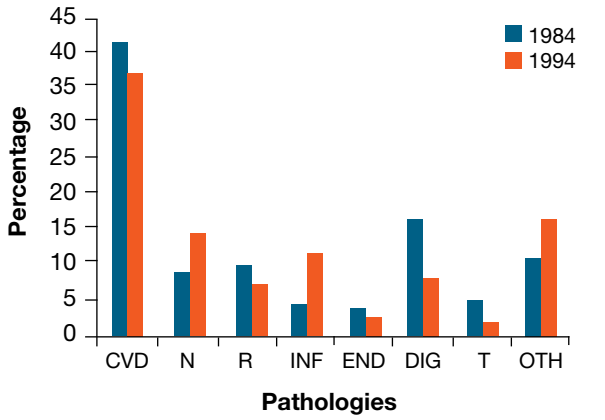
b) In the group of neoplasias, a significant increase was seen among males (5.5% in 1984, 10.6% in 1994, p< 0.001), while in females, the numbers remained stationary;

c) Admissions due to infectious diseases showed a significant increase among males (3% in 1984 and 9% in 1994, p<0.001). The following factors contributed to this increase: 1) a heterogeneous group of entities (which includes neither tuberculosis nor AIDS) which represents 1.3 of admissions in 1984 and 5.1% in 1994 (p<0.001) and in which cases of hepatitis, malaria and indeterminate febrile syndrome are predominant; 2) 49 admissions due to AIDS (3.7% of admissions in 1994, while in 1984, no cases were recorded) (*Table 4*).

Admissions due to tuberculosis, included in the group of infectious diseases, remained relatively stable (2% in 1984 and 1.3% in 1994).

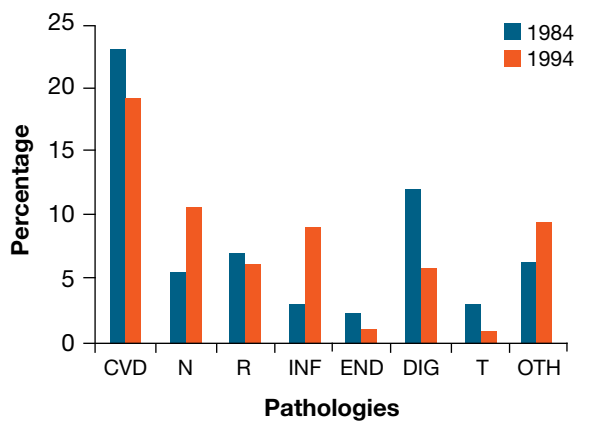
The slight increase in admissions for infectious diseases among females was not considered significant (1.2% and 2.8% for the two periods, respectively). In 1994, there were only 3 admissions due to AIDS, among females;

d) Admissions for diseases of the digestive system decreased overall (16.3% to 8%); but this decrease was more marked among males (12% to 5,8%) and exclusively at the cost of CHD, which decreased from 9.4% to 3.8% (p= 0.05, at the borderline of significance) (*Table 5*);



Distribution of Admissions by nosological group in both sexes.
(CVD – cardiovascular diseases; N – neoplasias; R – respiratory diseases; INF – infectious diseases; END – endocrine diseases; DIG – diseases of the digestive system; T – intoxications; OTH – other diseases).

FIG. 4



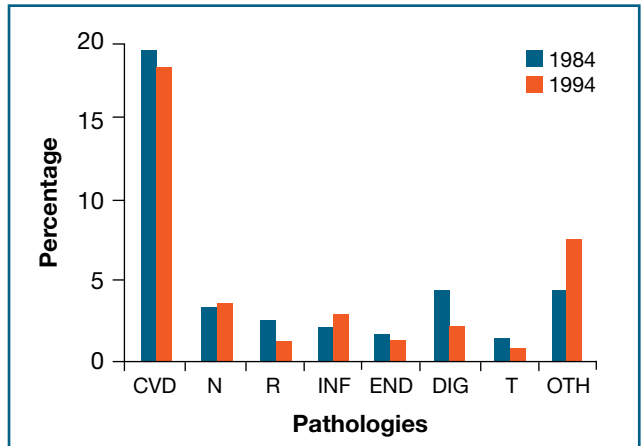
Distribution of Admissions by nosological group in males.
(CVD – cardiovascular diseases; N – neoplasias; R – respiratory diseases; INF – infectious diseases; END – endocrine diseases; DIG – diseases of the digestive system; T – intoxications; OTH – other diseases).

FIG. 5

TABLE III

Admissions due to CVA in both sexes, in 1984 and 1994

	1984		1994	
	Men	Women	Men	Women
CVA	137 (11.7%)	103 (8.9%)	112 (8.6%)	95 (7.3%)
Total	240 (20.4%)		207 (15.9%)	



Distribution of Admissions by nosological group in females.
(CVD – cardiovascular diseases; N – neoplasias; R – respiratory diseases; INF – infectious diseases; END – endocrine diseases; DIG – diseases of the digestive system; T – intoxications; OTH – other diseases).

FIG. 6

e) For the item "intoxication" (not related to drug dependence) there was a significant decrease among males (2.8% in 1984 and 0.5% in 1994), while among females, the numbers remained stationary.

f) Admissions due to drug dependence (whether or not associated with other situations), which were insignificant in 1984, increased gradually from 1988 onwards, reaching 4.1% of the total admissions in 1994. (*Fig.* 7);

g) In the item "other diagnoses", there was an increase in the percentage of admissions, which rose from 10.9% in 1984 to 16.8% in 1994;

4. Analysis of distribution of the nosological entities by the various age groups showed the following:

a) The increase in admissions due to infectious diseases mainly affecting patients aged from 21 – 30 years, and to a lesser extent, those aged from 31 – 40 years. Admissions due to AIDS in these two age groups represented 63.2% of the total cases registered among males;

b) the decrease in the percentage of admissions due to CHD, responsible for the decrease in diseases of the digestive system, was more marked among males, among whom the percentages dropped from 6.5% to 1.9% in the 41 to 60 year age group alone;

c) The increase, in 1994, for the item "other diagnoses" was predominantly among the 71 to 90 year age group, while there was a decrease in four main diagnoses: urinary infections (44 cases), anemia of

TABLE IV

Distribution of infectious diseases in both sexes, in 1984 and 1994

	1984		1994	
	Men	Women	Men	Women
Tuberculosis	19	4	11	6
AIDS	—	—	49	3
Others	16	10	57	27
Total	35 (3%)	14 (2%)	117 (9%)	36 (2,8%)

TABLE V

Admissions due to CHD in both sexes, in 1984 and 1994

	1984		1994	
	Men	Women	Men	Women
CHD	110 (9.4%)	29 (2.5%)	50 (3.8%)	10 (0.8%)
Total	139 (11.7%)		60 (4.6%)	

indeterminate cause (33 cases), dehydration (12 cases) and osteoarthritis (8 cases) which together, represent 7.4% of the total admissions.

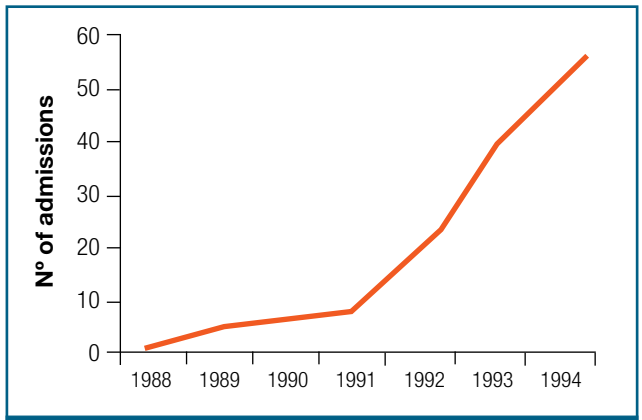
Discussion

In the last 10 years, there has been a growing belief that the casuistic of the Internal Medicine Services is undergoing a rapid and profound transformation.

The review of admissions in the Medical Service 1 of the HSAC in the years 1984 and 1994 not only enabled this conviction to be confirmed, but also enabled it to be quantitatively expressed, and some explanations proposed.

In this work, it was observed that the distribution of admissions by age group altered significantly.

In the 21 to 30 year age group, there was a significant increase in admissions among males, from 2.4% to 5.4%. Analyzing this group separately, we observed that this increase was due to an overall increase in the number of cases of infectious disease (3% of admissions in 1984 and 9% in 1994), which included 49 cases of admission due to AIDS, a diagnosis which, in 1984, does not appear in the casuistic of the Service. It is recalled that the first case of AIDS diagnosed in Portugal was in 1983, and that in 1984 only 4 cases



Evolution of Admissions by drug dependence 1998 – 1994.

FIG. 7

were diagnosed.[4]

In females, no increase in the percentage of admissions was registered in this age group, which is related to a slight growth in cases of infectious diseases and the low number of admissions due to AIDS (only 3 in 1994). These data are in accordance with the distribution of AIDS in the two sexes, which reveal, up to 1995, around 84.4% of cases in men and only 15.3% in women.[4]

In the age groups 41 to 50 years, and 51 to 60 years, there was a significant decrease in the percentage of admissions, particularly among males and in the second of these two age groups. Analysis of this group showed, between 1984 and 1994, a decrease in cases of CHD, which was much more significant among males. Although the figures found are at a borderline level of significance, there are strong indications that the reduction in cases of CHD contributed to the decrease in admissions. Similar data were, incidentally, recorded at the Medical Service I of the Hospital de Santa Maria, where between 1977 and 1981, the percentage of cases of hepatic cirrhosis decreased significantly.[5] This trend continued to increase throughout the subsequent decade, and it was observed that cases of liver cirrhosis in that service moved down from 2nd place among the causes of admission in 1977 (11.1%), to 10th place in 1991 (1.9%). (Oliveira Soares, Causas de Internamento no Serviço 1 de Medicina do Hospital Santa Maria, non published data).

The explanations for this apparent decrease in

mortality by liver cirrhosis are outside the scope of this work. However, two possible reasons are proposed, relating to alterations in habits among the Portuguese population: Improved living conditions, with access to a diet with a higher protein content[6] and the increased consumption of beer, from 3.6% of all alcoholic beverages in 1965, to 22.4% in 1983, resulting in a decrease in consumption of wine, from 70% to 52.6%.[7] It is possible that the increased consumption of beer, which has a lower alcohol content (+5% vol.) and does not contain some of the chemical substances present in wine, which may have been considered responsible for causing cirrhosis, may in a certain form, be involved in this decrease in cases of CHD registered by the Internal Medical Services.

The increase in the percentage of admissions of patients aged over 81 years (9.9% in 1984 and 18.6% in 1994) has been found in works carried out in our Internal Medicine Services[8,9] and is related to the higher life expectancy, and therefore, to the population aging that is occurring in nearly all the developed countries.[6,10]

The increase in admissions in this age group, in 1994, is related to a more heterogeneous group of situations, but predominantly urinary infections, anemias of unknown cause, and dehydration.

The insignificant decrease in admissions due to tuberculosis is in accordance with the general incidence of tuberculosis in Portugal which decreased from 68.2 to 49.6 per 100 thousand inhabitants between 1984 and 1993.[6]

The increase in admissions due to neoplasias among males seems to be attributable to the use of beds for patients of the Medical Oncology Unit, functioning as an annex to Service 1 during periods when there are high numbers of patients receiving chemotherapy treatments, requiring short periods of admission. This was what occurred in 1994, when a significant increase was registered in males with carcinomas of the colon and bladder, who required hospitalization for 24 to 48 hours. Thus, this increase in percentage of admissions due to neoplasias appears to due to factors related to the Service, rather than a reflection of what is happening in the Internal Medicine service in general.

Conclusions

Between 1984 and 1994, the casuistic of admissions in the Medical Service 1 of the HSAC reveals important differences, of which the following are highlighted:
1. A significant increase in admissions of males aged between 21 and 30 years, due to the increase in cases of infectious diseases (particularly hepatitis and malaria) and the appearance of cases of AIDS, which were non-existent in the casuistic for 1984.
2. A significant decrease in admissions in the 41 to 60 year age group, due to a decrease in cases of CHD.
3. A significant increase in admissions of patients aged of 80 years, reflecting a general aging of the Portuguese population. ■

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