
RESULTS OF PREVALENCE STUDY REGARDING COMORBILITIES FOR VARIOUS PATIENTS¹

A. CAPISIZU

University of Medicine and Pharmacy "Carol Davila", Bucharest

A. ZAMFIRESCU

University of Medicine and Pharmacy "Carol Davila", Bucharest

S.M. AURELIAN

University "Titu Maiorescu", Bucharest

I. DINA

University of Medicine and Pharmacy "Carol Davila", Bucharest

Abstract

It is known that health problem represents an object of permanent study. The study to prevent chronic diseases, factors involved to keep the health status, means to improve the effect of various diseases/affections have been and are appreciated.

Key words: chronic diseases, ageing, dependency ratio, prevalence, CIRS-G scale

During the United Nations Summit held in New York between 19-20 September 2011, the issue of chronic diseases (cancer, diabetes, heart diseases, stroke, and dementia) was pointed out as being responsible for 63% of deaths worldwide [1,2].

The analysis of the demographic data for the EU countries showed that in the recent decades the population over 65 years has started to increase numerically, with the highest rate in the age group of 80+. The predictors for 2050 show that, without taking into consideration the level of fertility as being slightly up itself, the senior population (60+, 65+ or 80+) will increase in number and percentage in all the European countries, with the highest increase in the group of the oldest old, aged 80 and over [3,4]. Demographic ageing affects all European countries, but it might vary from country to country. Increasing of the dependency ratio in the elderly (number of persons aged over 65 reported to the number of the active population) is a reason of concern [3]. Geriatrics is the medical specialty that evaluates the elderly patients in a complex way, making a connection between both psychical condition and physical health.

¹ Regarding elderly patients with insanity

Observational cross-sectional one year study (2011-2012) on 238 inpatients (160 women, 78 men, average age 77.44 ± 6.60 years). We assessed the types of dementia prevalence, as well as the associated diseases and their severity, using Cumulative Illness Rating Scale in Geriatric population (CIRS-G scale). Degrees of scale: 0-for the absence of comorbidities, up to 4-the most severe. We compared the severity score in patients with or without dementia.

One of four patients is diagnosed with dementia, and from this 2/3 are women. One of three patients is diagnosed with dementia in the age group of 60-64. After the age of 64 the percentage of patients diagnosed with dementia drops to one out of eight, and then increases again up to 41,2 % in the age group of 90 plus. Alzheimer's dementia represents more than 50% of all dementia, with a share of over 70% in the age group of 70-79, and in patients over 90. The most common comorbidities of the entire group are the heart and vascular system disorders equal to (65.96%). The highest average score of severity is owned by psychiatric disorders (2.474) for patients with dementia, being followed by heart (1.776) and vascular diseases (1.726) for all patients, with small differences in favor of those without dementia.

Dementia has an important impact on life quality in elderly patients. **Medical comorbidity and chronic diseases** remain a major issue, but too little studied conceptually. In elderly patients it is necessary to use appropriate tools for assessing comorbidities: prevalence and severity, for a correct and complete diagnosis in order to prevent complications, and to initiate the appropriate treatment. CIRS-G scale can be included as such an instrument in geriatric clinics.

The health of the elderly people is often characterized by the existence of polipathology, atherosclerosis being one of the main causes. The symptomatic manifestations of atherosclerosis are particularly localized at the level of the heart, brain, kidneys, the small intestine or the leg arteries [5]. The last decades are characterized by demographic ageing with an increased prevalence of dementia [6]. **The recent concept of comorbidity** has been applied in psychiatry and geriatrics. This implies the presence of one or more chronic or acute diseases (which may involve different organs and systems) in the same person [9, 15]. Chronic diseases, which often coexist in the elderly, contribute to functional disabilities, decrease life quality and increase long-term care costs or health care costs in general [7,3].

We assessed the types of dementia prevalence, the associated diseases and the severity of them, using Cumulative Illness Rating Scale in Geriatric population (CIRS-G scale) designed by Miller and collaborators in 1992. We used several variables: age, gender, prevalence of dementia, type of

dementia, and grade of severity of comorbidities in the elderly, evaluated with CIRS-G scale.

The **CIRS-G Scale** is organized in 14 items representing individual body systems: Heart, Vascular, Hematopoietic (blood, blood vessels and cells, marrow, spleen, lymph), Respiratory (lungs, bronchi, trachea below the larynx), Eyes, ears, nose and throat and larynx, Upper gastro-intestinal (esophagus, stomach, duodenum), Lower gastro-intestinal (intestines, hernias), Liver (including biliary and pancreatic trees), Renal (kidneys only), Genitourinary (ureters, bladder, urethra, prostate, genitals, uterus, ovaries), Musculoskeletal/integument (muscles, bone and skin), Neurological (brain, spinal cord and nerves), Endocrine/metabolic and breast (includes diffuse infections and poisonings), Psychiatric illness.

Degrees of severity are rated from 0 to maximum 4 for each item according to the state of severity, as follows:

0= No problem affecting that system.

1= Current mild problem or past significant problem.

2= Moderate disability or morbidity and/or requires first line therapy.

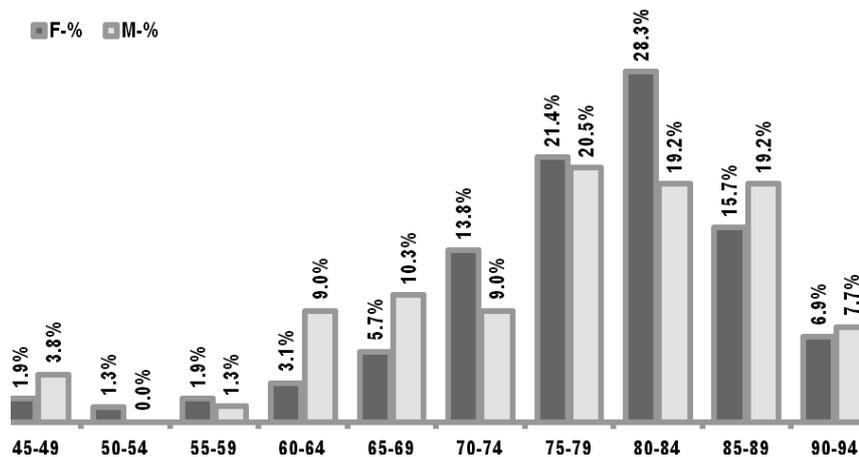
3= Severe problem and/or constant and significant disability and/or hard to control chronic problems.

4= Extremely severe problem and/or immediate treatment required and/or organ failure and/or severe functional impairment

Results: Data and statistical information, graphics

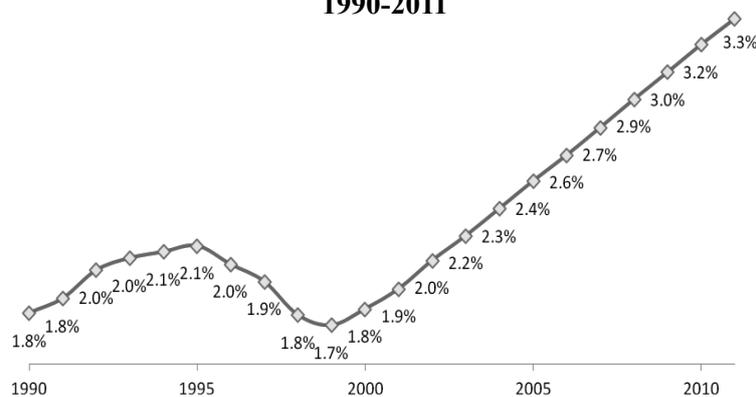
The population was divided in ten age groups. The average age is $77,63 \pm 9,77$ years/ person; by gender the distribution of $78,04 \pm 9,27$ for women, and $76,81 \pm 10,67$ for men. Age groups are homogenous since the coefficient of variation is less than the range of 35%.

Distribution of patients by age groups



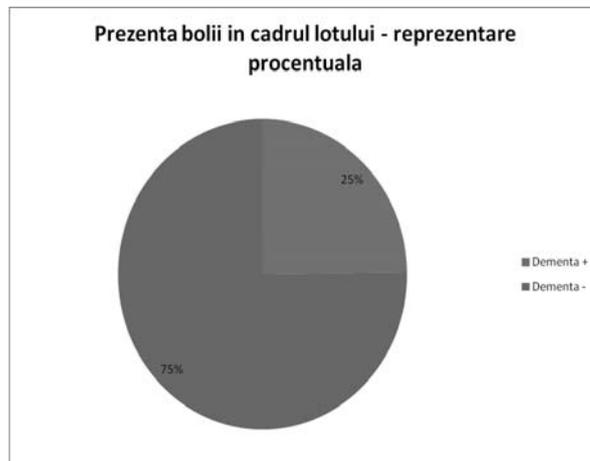
In Romania between 1990 and 2011, the group of population beyond the age of 80 had a trend of growth of 2.6% per year, which is superior to the general trend of population decrease of 0.4% per year. This population dynamics is reflected in the increased share of the 80+ in the population. The trend of growth in the group of the 80+ is observed especially after the year 2000, when this share doubles.

Evolution of the share of 80+ in the total population of Romania between 1990-2011

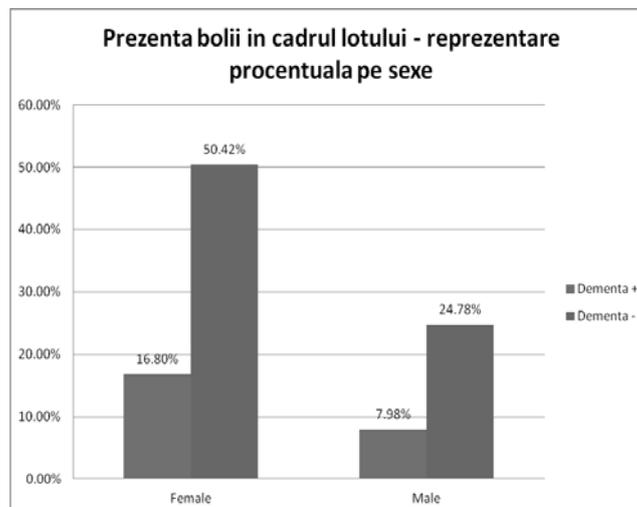


One of four patients is diagnosed with dementia, and one of three patients diagnosed with dementia is male; most of the patients diagnosed with dementia are women (two of three)

Distribution of patients with and without dementia

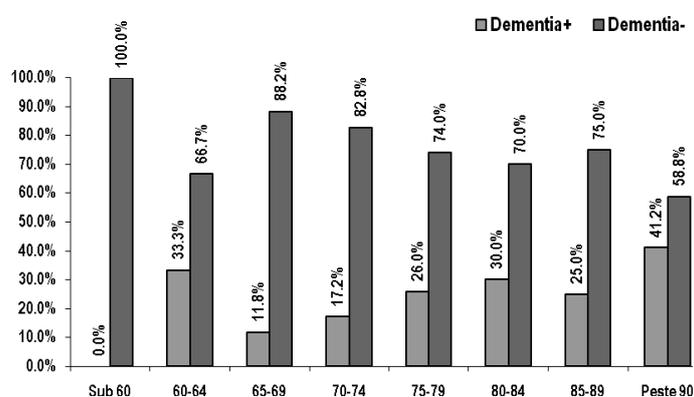


Gender distribution of patients with dementia



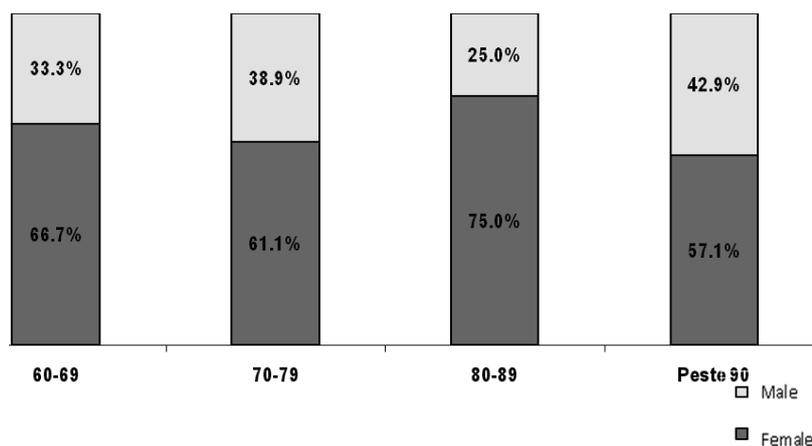
Under the age of 60 there were no patients diagnosed with dementia. One of three patients is diagnosed with dementia in the age group of 60-64. After the age of 64 the percentage of patients diagnosed with dementia drops to one of eight, and then increases again up to 41,2 % in the age group of 90 plus.

Distributions of patients diagnosed with dementia by age



We noticed a high prevalence of dementia in women. One out of two patients in the age group of 80-89 is diagnosed with dementia

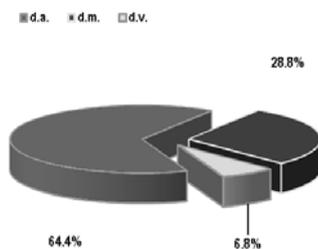
Structure of patients diagnosed with dementia by age and gender



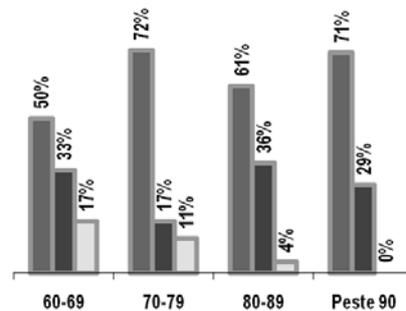
| Age groups | 60-69 | 70-79 | 80-89 | >90 |
|---|-------|-------|-------|-------|
| Share of patients diagnosed with dementia | 10,2% | 30,5% | 52,5% | 28,8% |

Two of three patients with dementia are diagnosed with Alzheimer's disease. Alzheimer's dementia represents more than 50% of all dementia, with a share of over 70% in the age group of 70-79, and patients over 90.

Structure of patients by dementia type



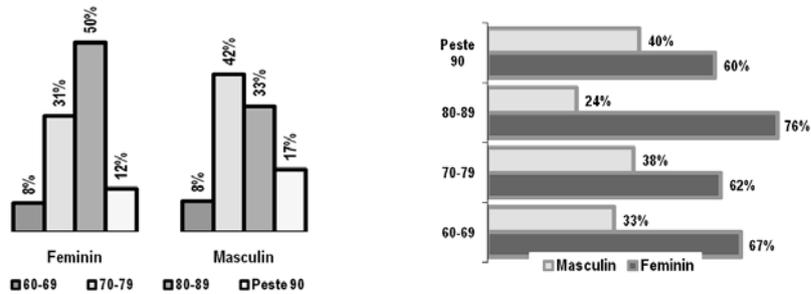
Structure of patients by dementia type and age



The patients diagnosed with Alzheimer's dementia have different types of distribution :

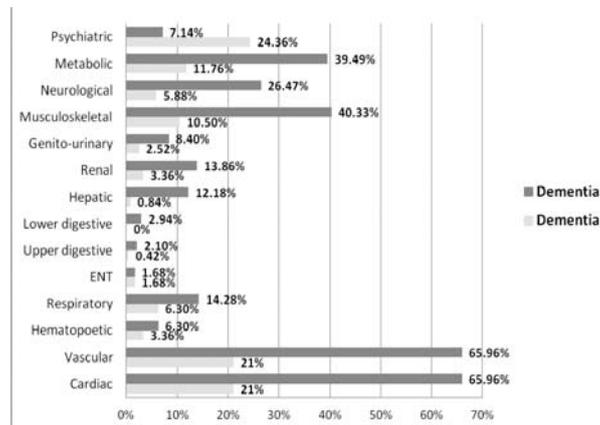
- In women the highest representation is in the age group of 80-89, while in men in the age group of 70-79.
- There is a higher percentage of women than men in patients diagnosed with Alzheimer's dementia
- Most of the women diagnosed with dementia are aged approximately 83, while the men are aged 78 – as calculated by modal values

The distribution of Alzheimer's dementia



The most common comorbidities of the entire group are the heart and vascular system disorders equal to (65.96%); next are the metabolic and musculoskeletal disorders. In the third place are the psychiatric diseases

The distribution of all comorbidities (CIRS-G)



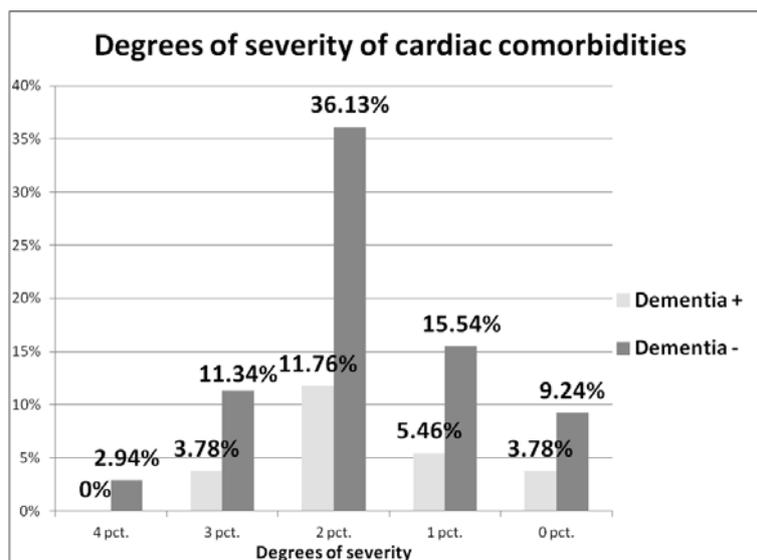
The highest average score of severity by CIRS-G scale is owned by psychiatric disorders (2.474) for patients with dementia, being followed by heart (1.776) and vascular diseases (1.726) for all patients, with small differences in favor of those without dementia

Average score of severity CIRS-G scale

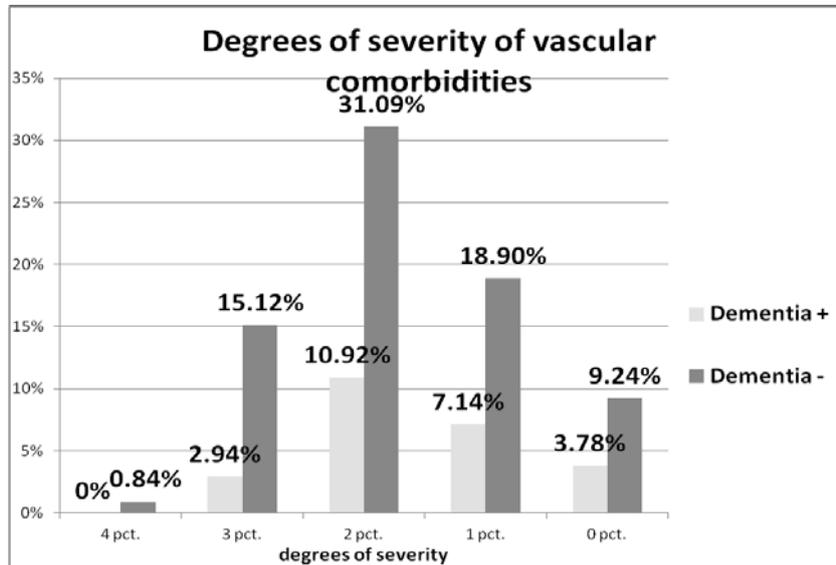
| Item CIRS-G | Study population | Dementia + | Dementia - |
|------------------------|------------------|--------------|--------------|
| Cardiac | 1.739 | 1.627 | 1.776 |
| Vascular | 1.676 | 1.525 | 1.726 |
| Hematopoetic | 0.134 | 0.152 | 0.128 |
| Respiratory | 0.403 | 0.491 | 0.374 |
| ENT | 0.058 | 0.135 | 0.033 |
| Upper digestive | 0.037 | 0.016 | 0.044 |
| Lower digestiv | 0.063 | 0 | 0.083 |
| Hepatic | 0.218 | 0.050 | 0.273 |
| Renal | 0.352 | 0.288 | 0.374 |
| Genito-urinary | 0.201 | 0.186 | 0.206 |
| Musculoskeletal | 1.117 | 1.067 | 1.134 |
| Neurological | 0.752 | 0.576 | 0.810 |
| Metabolic | 1.042 | 1.084 | 1.027 |
| Psychiatric | 0.747 | 2.474 | 0.178 |

The highest degrees of severity for cardiac comorbidities is score 2, in patients without dementia (36.13%), for vascular comorbidities is also score 2 in patients without dementia (31.09%).

Degrees of severity for cardiac comorbidities

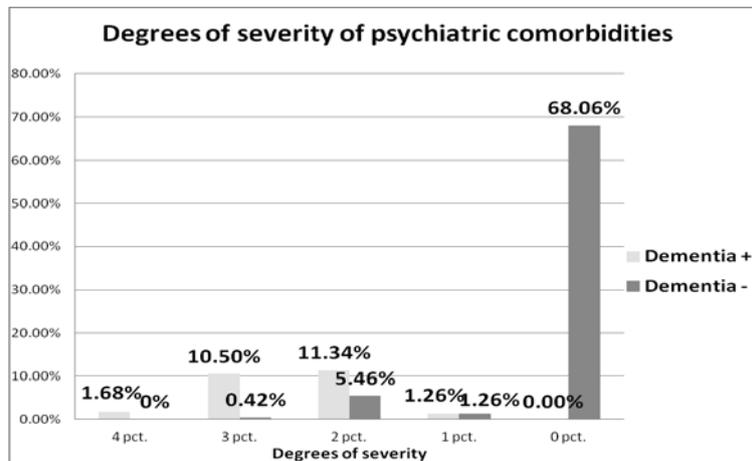


Degrees of severity for vascular comorbidities



For psychiatric comorbidities the highest score is 0 in patients without dementia and score 2 and 3 for the rest (11.34%)

Degrees of severity for psychiatric comorbidities



The term comorbidity is described by Feinstein as “any distinct additional entity that has existed or may occur during the clinical course of a patient who has the index disease under study”[8]. Also, some authors differentiate between comorbidity and multimorbidity (the coexistence of two or more diseases in a patient without designating a primary disease - disease index). [9]

Despite all these problems, for the sake of simplicity, we will consider comorbidity as a list of diseases/disorders relevant to the patient, which may influence his prognosis. [11]

Medical comorbidity is common for older people with or without dementia in the primary care system. [10]

In Romania the last prevalence analysis of non-transmissible diseases was performed in 1997. Major Chronic Diseases - MCDS are associated in comorbidities in the elderly, and affect at least 50 of 100 000 people, causing altogether 86% of deaths in the EU. In the elderly, patients with cognitive impairment, especially dementia, commonly suffer from a range of medical comorbidities that contribute to the progression of their cognitive and functional decline, such as cardiovascular diseases, diabetes, chronic respiratory diseases, as well as musculoskeletal diseases [12].

The report from 2008 shows that Romania had one of the highest rates of mortality by *cardio-vascular* diseases (558. 32 as compared with the average in EU27 of 240. 44), more than 25% of deaths being reported in the age group of under 65 years. [8] In our study we used a recommended tool: Cumulative Illness Rating Scale for Geriatrics: CIRS-G. In 1992, Miller and collaborators [13] modified the CIRS scale - Cumulative Illness Rating Scale in CIRS-G to adjust the assessment of medical comorbidities in older people. CIRS-G scale shows the levels of severity of each diagnosis category, thus providing a complex picture of the overall health of the patient and having an evaluation strategy. [14, 15]

The assessment chart of the patient will have a total of five main pieces of information [14]:

Total number of disease/diagnosis categories recorded, CIRS-G total score, Severity index (total score/total number of registered diseases), The number of categories with severity level 3, The number of categories with severity level 4.

To summarize, the advantages of CIRS-G scale are given by the fact that data can be gathered also from the retrospective analysis of the patient’s medical records. There are very few studies on the prevalence of medical comorbidities in dementia or about its effects on cognition and daily functionality.

Multimorbidity may affect the correct diagnosis including here the time spent in order to make a diagnosis [17]. Multimorbidity affects the duration of hospitalization and the hospital costs.

A correct and complete diagnosis is important to prevent both complications and an inadequate or incorrect treatment. Nevertheless, we are interested in reducing the costs, and in increasing the life quality of the patients.

An ageing population with multimorbidities in which Alzheimer's dementia represents a main problem will imply an increase of the financial burden for long term care. [16]

If we consider the present health policies, the financial expenses are predicted to increase with 1.2% from GDP by 2060 due to the very old people (80 years and older), the age group that will encounter the greatest increase in the next years. For the countries with less developed formal assistance services, it might happen that the presumed increase of public financial expenses would underestimate the future pressure on public finances caused by the estimated need to increase the offer of assistance for the elderly. [4]

Conclusions

- 25% of patients are diagnosed with dementia,
- Under the age of 60 there were no patients diagnosed with dementia.
- One of three patients is diagnosed with dementia in the age group of 60-64.
- After the age of 64 the percentage of patients diagnosed with dementia drops to one out of eight, and then increases again up to 41,2 % in the age group of 90 plus
- 16.8% from dementia patients are women.
- Two out of three patients with dementia are diagnosed with Alzheimer's disease.
- Alzheimer's dementia represents more than 50% of all dementia, with a share of over 70% in the age group of 70-79, and in patients over 90
- The most common comorbidities of all the group study are the heart and vascular system disorders equal to (65. 96%).
- The highest average score of severity is owned by psychiatric disorders (2.474) in patients with dementia
- The following average scores of severity: heart (1.776) and vascular diseases (1.726) for all patients are almost equal, with small differences in favor of those patients without dementia.
- Dementia has an important impact on the quality of life in elderly patients.

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- Medical comorbidity remains a major issue, but too little studied conceptually.
 - In elderly patients it is necessary to use appropriate tools for assessing comorbidities: prevalence and severity, for a correct and complete diagnosis in order to prevent complications and to initiate the appropriate treatment.
 - CIRS-G scale can be included as such an instrument in geriatrics.

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