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TOPICAL ISSUE

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ANALYSIS OF MORTALITY AMONG PATIENTS WITH COGNITIVE DISORDERS

The structure of mortality among patients with the established diagnosis of dementia was evaluated and analyzed who seek medical help at the Yakut Republican Neuropsychiatric Dispensary for the period from 2019 to 2024. Totally 213 fatal cases were analyzed in patients with the diagnose F00 - F03. The average age of death in men diagnosed with dementia was 76.08 +8.73 years, and among women this indicator was 80.3+8.77 years. When analyzing the immediate cause of death in patients with dementia, cerebral edema was indicated in the first place (16.43%), other specified forms of pulmonary heart failure were diagnosed in the second place on the death certificate (15.96%), and acute respiratory failure was in the third place (15.49%). Among the initial causes of death, the most common cause of death was coronary heart disease (22.06%), pneumonia of various origins (15.9%) was in second place, and diagnoses that were included in the category of brain damage (encephalopathy) were most often in third place, which amounted to 15.03%. Among the initial causes of death among patients with dementia, it is extremely rare to be diagnosed with dementia (6.07%), which strongly affects mortality statistics.

Keywords: mortality, Alzheimer's disease, dementia, diagnosis

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Introduction: The problem of cognitive disorders and dementias that develop in the elderly and senile age, is currently, the most urgent problem for the entire world community. If we talk about the most common form of dementia in Alzheimer's disease, then its prevalence is extremely high, so five percent of people aged 65 to 74 years, 13.2% of people aged 75 to 84 years and 33.4% of people aged 85 years and older suffer from Alzheimer's disease. Dementia is a multi-factorial syndrome characterized by a significant cognitive decline, which manifests itself in the deterioration of memory, language, and other abilities that prevent independence [10]. В конUltimatelyитоге, dementia is fatal, although many people also die и from other diseases before dementia becomes fatal. Studies show that people aged 65 and older survive an average of four to eight years after being diagnosed with Alzheimer's dementia, but some live up to 20 years. Severe dementia often causes complications such as immobility, difficulty swallowing and malnutrition, which significantly increase the risk of acute conditions that can lead to death. One such condition is pneumonia (a lung infection), which is the most commonly identified direct cause of death in older adults with Alzheimer's disease or other types of dementia.

Compared with people with Alzheimer's disease, a diagnosis of any non-Alzheimer's dementia was associated with a higher risk of all-cause mortality, shorter survival time from diagnosis, and younger age at death, with the highest risk of death in patients with Lewy body dementia [9].

The variability of mortality rates was determined by the number of samples, the conditions of research and the differences in the time frame of the analyzed periods. In the conditions of Russian reality, the methodological equipment of this kind of research suffers for various reasons, primarily due to the lack of reliable mortality rates for Alzheimer's disease and other dementias in the official statistics of causes of death [5, 8]. As shown by domestic researchers in the field of demography, mortality from Alzheimer's disease in the Russian Federation in all age groups is many times lower than in foreign countries [1].

Materials and methods: The cases of fatal outcome in patients who applied to the Republic of Sakha (Yakutia) "Yakut Republican Neuropsychiatric Dispensary", from December 2020 to April 2024 with a diagnosis of dementia (F00 - F03) were analyzed. Death certificates were taken from the RT-MIS medical information system. Statistical processing of the study results was carried out using the Statistica 6.0 program. The analysis used Spearman's rank correlation analysis, the Mann-Whitney and Kolmogorov-Smirnov coefficients, and the Student's t-coefficient. Differences were considered statistically significant at a p value of <0.05.

Results: A total of 213 cases of fatal outcomes we reanalyzed in patients with a diagnosis of F00-F03 who applied for medical care in the Republic of Sakha (Yakutia) "Yakut Republican Neuropsychiatric Dispensary", from 2020 to 2024. (including the month of April). In total, during this period of time, 674 patients with these diagnoses applied to the polyclinic department of the Republic of Sakha (Yakutia) "Yakut Republican Neuropsychiatric Dispensary", hence 31.6%, that is, every third patient had died by the time of the control section. The median age at death was 78, 78.65+8.73 years. There were 112 women (52.6%) and 101 men (47.4%). Death occurred in a medical institution in 122 cases (57.3%), at home in 54 cases (25.3%), the rest of the deaths occurred in social service institutions (boarding houses), mainly commercial, which accounted for 17.3% (37 cases). When analyzing the nosological structure of dementia, vascular dementia was diagnosed most often in deceased patients – 72 people, then F02.8 (other mixed dementias) was diagnosed most often in 67 deaths, senile dementia was diagnosed in third place in frequency, which amounted to 62 cases, and finally diagnoses such as dementia in Alzheimer's disease, frontotemporal dementia and dementia in Parkinson's disease were exhibited in nine, two and one cases, respectively (which accounted for a total of 5.6% of the total number of cases). Residents of Yakutsk predominated among the dead (92%). Of all the deceased patients, only 15 people had previously received inpatient treatment at Republic of Sakha (Yakutia) "Yakut Republican Neuropsychiatric Dispensary", often this was the only hospitalization and in only one clinical case of frontotemporal dementia, the patient was hospitalized more than 3 times in the psychiatric department of the dispensary. I would like to note, that not a single fatal case occurred in a round-the-clock psychiatric hospital, all patients were in somatic departments of various profiles (most of them in the palliative care department). Severe psychotic symptoms were detected only in 28 cases (13.1%), and were expressed in recurrent visual hallucinations, gross behavioral disorders, and pronounced physical and verbal aggression. In most cases, patients and their relatives sought the advice of a psychiatrist to register a disability group and an individual habilitation program (obtaining individual personal hygiene products, absorbent products), as well as to determine the type of social service institution for the patient's permanent stay. Subsequently, an autopsy was performed in 50.7% (108 people) of fatal cases, the rest – 105 patients (49.3%) were not subjected to pathological anatomical examination. Among the patients who died in hospitals in 38 cases (31.4%), that is, in every third case, an autopsy was not performed. To analyze directly the main causes of death in patients with dementia, it is necessary to understand what the immediate cause and the original cause of death are. Thus, the immediate cause of death is a morphological state of organ changes that led to the development of irreversible functional disorders and made it impossible to continue human life as a single living organism, when the initial cause is a disease or injury that caused a chain of events that directly led to death. When analyzing death certificates, the immediate and initial cause of death were used in the study. The immediate causes of death are shown in table 1.

Initial causes of death were grouped by major ICD – 10 diagnoses and presented in table 2.

All patients were divided into 5 age groups by age at the time of death (from 50-59 years; 60-69 years; 70-79 years; 80-89 years; older than 90 years). The minimum age of death for a diagnosis of dementia was 53 years, and the maximum age was 99 years. Thus, the first group consisted of 9 people (4.2%), the second age group – 31 people (14.5%), the third group – 61 patients (28.7%), the fourth – 78 patients (36.6%) and the fifth – 34 people (15.9%) (see Diagram).

Spearman's correlation analysis revealed significantи correlations between gender and age of death ($r=-0.238$ $p<0.05$), as well as between such signs as death in hospital and autopsy ($r=0.507$ $p<0.05$). When comparing the subgroups of traits between men and women, a significant correlationwas found between age and diagnosis in the subgroup of women (Kolmagorov – Smirnov test) $p<0.05$. No more-differences were found between the subgroups of men and women.

Discussion of results: an Analyzing the results obtained, first of all, it is necessary to pay attention to the fact that the average age at the time of death in patients with an established diagnosis of dementia c is 78.65+8.73. The average age of death in men diagnosed with dementia was 76.08 +8.73 years, among women this indicator was 80.3+8.77* years, that is, women diagnosed with dementia died significantly more often at a later age than men. This is due to gender differences in life expectancy in the Russian Federation, which is also reflected in life expectancy in patients with age-associated pathologies.

The nosological structure showed, that vascular dementia is most often diagnosed (33.8%), that is, in every third patient. It should be noted, that almost always the diagnosis of vascular dementia is made in the presence of a history of acute cerebral circulatory disorders, while there are not always clear indications of a vascular catastrophe. The second most frequent diagnosis was organic dementia (31.4%), which was mainly made in the absence of any significant reasons for the development of cognitive decline (for example, cerebral circulation disorders, severe TBI, etc.). In essence, this diagnosis does not reflect to any extent the main nosological affiliation of dementia, but rather is simply a kind of "working" diagnosis, although in fact any other nosological form of dementia may be within the framework of this diagnosis. It can also be mentioned that not all pa-

Table 1

Immediate causes of death in patients with dementia

Direct cause	Number of patients	%
G93. 6 Cerebral edema	35	16.43
I27. 8 Other specified forms of pulmonary heart failure	34	15.96
J96. 0 Acute Respiratory failure	33	15.49
I50. 0 Congestive Heart failure	20	9.38
I50 Left Ventricular failure	10	4.69
R64 Cachexia	9	4.22
I25. 1 atherosclerotic heart disease	7	3.28
I67. 8 Other specified brain vascular lesions	6	2.8
I50. 9 Unspecified heart failure	5	2.34
A41.9 Sepsis unspecified	4	1.87
I24. 8 Other forms of acute coronary heart disease	4	1.87
I42. 9 Cardiomyopathy unspecified	4	1.87
A41. 8 Other specified sepsis	3	1.4
J81 Pulmonary edema	3	1.4
R65.3 the Syndrome of systemic inflammatory non-infectious origin with organic disorders	3	1.4
J18.0 unspecified Bronchopneumonia	3	1.4
F01.8 Other vascular dementia	3	1.4
C80.9 Malignant neoplasm of unspecified	3	1.4
I26.0 Pulmonary embolism with mention of acute pulmonary heart	2	0.93
I25.5 Ischemic cardiomyopathy	2	0.93
F01.2 Subcortical vascular dementia	2	0.93
T71 Asphyxiation	1	0.46
I48.0 Paroxysmal form of atrial fibrillation	1	0.46
T51.1 Toxic effect of methanol	1	0.46
R57.8 Other types of shock	1	0.46
T79.4 Traumatic shock	1	0.46
S06.5 Traumatic subdural hemorrhage	1	0.46
A16.2 TB lung without mention of bacteriological or histological confirmation	1	0.46
J85.1 Abscess of lung with pneumonia	1	0.46
K72.0 Acute and subacute hepatic failure	1	0.46
K72.1 Chronic liver failure	1	0.46
J96.1 Chronic respiratory failure	1	0.46
I69.3 the Consequences of cerebral infarction	1	0.46
G93.5 compression of the brain	1	0.46
I61.8 Other cerebral hemorrhage	1	0.46
I21.4 upper subendocardialnah Acute myocardial infarction	1	0.46
I21.0 Acute transmural infarction of the anterior wall of the myocardium	1	0.46
I46.9 heart failure unspecified	1	0.46
I42.0 Dilated cardiomyopathy	1	0.46

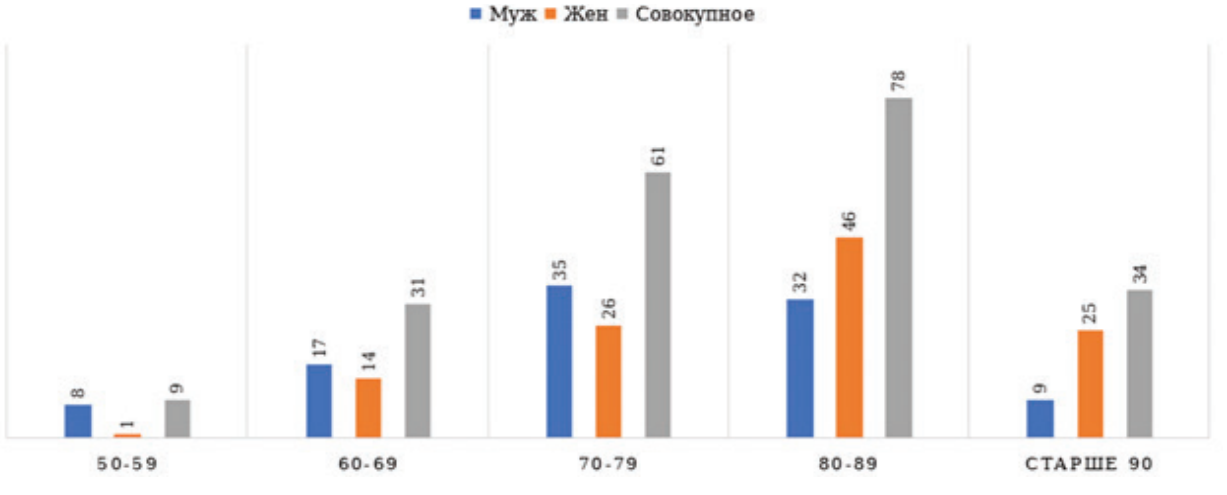
Table 2

Underlying causes of death in patients with dementia

Initial cause of death	Количество больных	%
I 25. Coronary heart disease	47	22.06
J12-18. Pneumonia	34	15.9
G 93. Brain damage	32	15.03
U 07. COVID- 19	19	8.9
I 60-69.Stroke	14	6.57
From 00-97. Neoplasms	9	4.22
F 01. Vascular dementia	9	4.2
I 21. Myocardial infarction	8	3.75
I 11. Hypertension	6	2.8
E 11. Type 2 diabetes mellitus	4	1.87
F 00. Alzheimer	4	1.87
J 44. COPD	4	1.87
A15-19. Tuberculosis	3	1.4
L 89. Pressure sores	2	0.93
R 64. Cachexia	1	0.46
I 82. Thrombosis	1	0.46
T 95. Burn disease	1	0.46
D 69. Thrombocytopenic purpura	1	0.46
M 86. Osteomyelitis	1	0.46
G 00. Meningitis	1	0.46
I 71. Aortic aneurysm	1	0.46
K 40 -46. Hernia	1	0.46
I 35. Aortic stenosis	1	0.46
K 85. Acute pancreatitis	1	0.46
J 09 -18. Influenza	1	0.46
N 30. Cystitis	1	0.46
K 74. Cirrhosis	1	0.46
K 56. Intestinal obstruction	1	0.46
T00-07. Injury	1	0.46
K 65. Peritonitis	1	0.46
F 10. Alcoholism	1	0.46
G 20. ParkaNson's disease	1	0.46

tients undergo MRI diagnostics (according to our data, only8.5% of patients had a mention of passing or passed to a state institution), but perhaps most patients undergo MRI in commercial institutions. The available MRI findings were quite uninformative for differential diagnosis of different types of dementia, and contained only general conclusions about neurodegeneration. In fact, in terms of the frequency of occurrence of various forms of dementia, dementia in Alzheimer's disease should be in the first place, when as in our study, its specific weight was only 4.2% of the total number [2].

When analyzing the immediate cause of death in patients with dementia, brain edema was indicated in the first place (16.43%), the second place in the death certificate indicated the diagnosis of other specified forms of pulmonary heart failure (15.96%), and the third place was acute respiratory failure (15.49%). Among the initial causes of death, the most common cause of death was ischemic heart disease (22.06%), followed by pneumonia of various origins (15.9%), and the third most common diagnosis was made under the heading of brain damage (encephalopathy), which was 15.03%. The results obtained differ from the data of other domestic researchers, which indicate somatic diseases only in half of the cases, and the remaining part falls on the end stage of dementia [5]. In our study withered of initial causes of death, only 13 cases were diagnosed with dementia (4 cases of Alzheimer's disease and 9 cases of vascular dementia), which is actually very small. In fact, the diagnosis of dementia, namely dementia in Alzheimer's disease and mixed forms (vascular dementia + dementia in Alzheimer's disease) should be made much more often at pathoanatomical sections, since only in this case it is possible to conduct a



The distribution of mortality rates across different age groups. (Man – blue, women – orange, general – gray)

histological examination of brain tissues that confirms the diagnosis of Alzheimer's disease. But again, the presence of a pathoanatomical study without taking into account the clinical picture (the presence of a cognitive defect) is not a criterion that determines the main diagnosis. In vivo analysis of brain tissues is not performed in Russia, and the only analysis that verifies the diagnosis of Alzheimer's disease, namely the analysis of spinal fluid for biomarkers of neurodegeneration (beta-amyloid and tau protein), is laborious and practically inaccessible in practical medicine [6, 7, 4]. Most likely, the diagnoses included in the category G93should have been encrypted on the death certificate as end-stage of various forms of dementia. The direct causes of death in the framework of somatic pathology obtained in our study generally do not differ from the main causes of death among the elderly population (cardiovascular pathology is in the first place, and pneumonia is in the second placeи) [3]. Possibly a specific one the role is played by the fact that in the RT –MIS information system, the visit of a psychiatrist to a neuropsychiatric dispensary is hidden from doctors of other specialties, but all updated diagnoses are usually reflected for all medical institutions.

A certain contribution to the causes of death of patients with dementia was made by a new coronavirus infection, so in the immediate causes of death, acute respiratory failure was in third place, and among the immediate causes of death, a new coronavirus infection was indicated in 19 cases (8.9%). Most likely, there were more deaths from больше, потомуNCVI, because the virus is not always tested positive. In such cases, the primary cause of death was unspecified or viral pneumonia.

Analyzing the causes of mortality in patients with dementia, I would also like to say that in fact, the diagnosis of dementia in MS (I) has certain difficulties, firstly in terms of territorial features (a large territory with a low population density), and secondly, insufficient availability of specialized medical care and primary outpatient screening (lack of specialists patients with cognitive disorders), as well as low awareness of the population about cognitive disorders, as well as the possibilities of modern pharmacotherapy. All this ultimately leads to insufficient diagnosis of dementia mainly due to Alzheimer's disease, which should make up the largest share in the nosological structure.

Conclusions:

1. Among the initial causes of death among patients with dementia, it is extremely rare to be diagnosed with dementia (6.07%), which strongly affects mortality statistics, although according to foreign data, Alzheimer's disease is one of the five main causes of death in citizens over 65 years of age [9, 10]. Perhaps, in some cases, the end-stage of dementia is indicated under the ciphers that encode various types of encephalopathies. Among the somatic causes of death in patients with dementia, diseases of the cardiovascular system and various forms of pneumonia are in the first place.

2. Low diagnosis of dementia in Alzheimer'srdisease among cases of severe cognitive decline. In general, the diagnosis of dementia aspa syndical diagnosis in neurology and psychiatry does not cause any difficulties, but differential diagnosis is very difficult and requires a comprehensive approach that takes into account the results of instrumental research methods, primarily magnetic resonance imaging, as well as the features of the neurocognitive profile described by a clinical psychologist.

The need for further research on the course of dementia, including its outcomes in MS (I), as well as the maintenance of registers, is an important goal for obtaining evidence-based statistical indicators. These data should be taken into account when providing various types of medical and social care to dementia patients and their families at all stages of the disease.

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