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THE ROLE OF THE HOSPITAL REGISTRY TO ASSESS THE QUALITY OF STROKE DIAGNOSIS

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The analysis of the data of the hospital register of stroke, which was performed in Vinnytsia during 2017-2019 in two hospitals according to a unified program have done. The main indicators that characterize the effectiveness of the existing in the region of the diagnostic system for stroke are proposed. The structure, quality indicators of the organization of diagnostic activities (application of stroke scales, timeliness and the fact of neuroimaging, dysphagia screening, consultation with a speech therapist, physiotherapist) were studied and evaluated on a large statistical material.

Key words: stroke, hospital register of stroke, indicators of diagnostic quality.

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РОЛЬ ГОСПІТАЛЬНОГО РЕГІСТРУ ДЛЯ ОЦІНКИ ЯКОСТІ ДІАГНОСТИКИ ІНСУЛЬТУ

Проведено аналіз даних госпітального реєстру інсульту, який був виконаний у м. Вінниця протягом 2017-2019 рр. в двох лікарнях за уніфікованою програмою. Запропоновано основні показники, що характеризують ефективність існуючої в регіоні системи діагностики при інсульті. На великому статистичному матеріалі вивчено й оцінено структуру, індикатори якості організації діагностичних міроприємств (застосування інсультних шкал, своєчасність та факт проведення нейровізуалізації, скринінг дисфагії, консультація логопеда, фізіотерапевта).

Ключові слова: інсульт, госпітальний реєстр інсульту, індикатори якості діагностики.

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Until now, most countries lacked verified and accurate information about the organization of stroke care, the implementation of plans and control of the organization of care for this pathology [4].

Key indicators of the quality of care for stroke patients aim to assess the quality of patient care and are an important part of any organized care system. Subsequently, these data can be used to develop global benchmarks for the provision of services to stroke patients to the extended, basic and minimum levels of services, which will contribute to measures to improve the quality of care, namely: informed decision-making and system planning [3].

Standards of assistance are the basis for a comparative assessment of the quality, capabilities, content, degree of a particular activity. A quality indicator is an objective measure of the quality of health care that is designed to assess and improve quality at the level of service providers, hospitals or organizations. The benchmark is the level of effectiveness that is recognized as the standard of progressive methods for a particular level of care, the outcome of treatment and is used for comparison between groups. Control indicators are standard values that can be used to identify, compare and evaluate a particular activity [3].

This information is needed to ensure that every clinician controlled and changed its activities for hospital and outpatient care services to institutions that provide financial health, guaranteed to provide adequate services, as well as for planners healthcare on international and national levels. In addition, it is important that patients and the public have access to quality control results. This inspires confidence that assistance is provided at a high level [7].

Established in 2007, the Executive Committee of the European Stroke Organization aims to improve the quality and eliminate significant differences in stroke management within and between European countries in the process of certification of stroke centers and departments (certification and audit criteria). The main requirements for stroke centers and departments are trained staff, diagnostic equipment, specialized and timely treatment and cooperation with other doctors who treat stroke. The additional value of combining the high-quality stroke units of the European Stroke Organization and stroke centers is the encouragement of future collaboration and research, which allows the formation and maintenance of an appropriate stroke care network in Europe [14].

The Stroke Action Plan for 2018-2030 in European countries aims to improve common standards of care according to international evidence-based medicine. The practical implementation of stroke certification and control audit programs contributes to the provision of high-quality coordinated care. Thus, it was found that the high quality of care, which meets all the parameters of the process, which were assessed during the

audit, reduces mortality by 25 % [2, 13]. In some countries, national or regional quality registers have been introduced to assess key indicators of care quality, while in other countries, programs have been organized to certify stroke centers and units [3].

Global registers for the quality of stroke care (including all hospitals where stroke patients are treated) are available in Sweden, the United Kingdom, Catalonia, Germany, Ireland, the Netherlands, Finland and Norway. In Eastern Europe, there is a RES4Q register on the quality of care, which quickly attracts clinical centers to participate. Only the United Kingdom and Sweden try to represent data for patients after discharge, and only in some countries are data provided on the quality of care. Spain and Italy have regional rather than national quality improvement initiatives, which are likely to lead to significant differences in the quality of assistance within the country. In France and Turkey, stroke quality indicators and a balanced consensus document on basic quality standards have been published [12].

For an adequate assessment of these indicators, it is necessary to consider the nuances of care at all stages of the plan of care, including care in the acute period, rehabilitation, post-hospital care and secondary prevention. It is necessary to record both the care provided and the experience reported by patients in obtaining it and the results of treatment. Registry data are an extremely powerful research tool for argumentation, then data obtained in a randomized controlled experiment can be extrapolated to day-to-day care [1, 8, 11].

That is, summarizing the above, we can see that the register adheres to the basic principle: if you cannot evaluate, you cannot manage.

The purpose of the study is to study and evaluate the structure, indicators of the quality of the organization of diagnostic activities for stroke in hospitals in Vinnytsia.

Material and methods. Medical institutions that are quite typical for this region of Ukraine were selected for the register. The work is based on the results of a retrospective analysis of medical histories of patients who were hospitalized for emergency indications to the stroke unit of the Municipal Non-Profit Enterprise «Vinnytsia Regional Clinical Psychoneurological Hospital named after Academician O. I. Yushchenko of Vinnytsia Regional Council» (VRCPNH) or Vinnytsia City Clinical Hospital of Emergency Medical Services (VCCHEMS) for the period 2017-2019 with a diagnosis of acute cerebrovascular accident. At the end of the treatment, a RES-Q report form was completed on a case-by-case basis – a special report forms in an international program developed by the European Stroke Organization (ESO) ESO-EAST initiative, which is used by the vast majority of stroke clinics in Europe. Since 2017, the hospitals of Vinnytsia surveyed by us have been participating in this program. From the data of RES-Q (version 1.0) you can get information not only about the clinical parameters of a stroke, but also the time indicators of individual procedures, which characterizes the work of the institution and serves as indicators of quality of work.

Statistical processing of the results was performed using the statistical package “Statistica 5.5” (licensed № AXXR910A374605FA) using parametric evaluation methods.

Results of the study and their discussion. In the stroke unit VRCPNH in 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, in whom the NIHSS scale was used were found most often (respectively: in 2017 – 99.7 %, 100 % and 97.3 % for men and 98.6 %, 100 % and 88.0 % for women; in 2018 – 99.4 %, 99.6 % and 97.8 % for men and 100 %, 100 % and 100 % for women; in 2019 – 99.3 %, 99.6 % and 97.4 % for men and 98.9 %, 98.7 % and 100 % for women). In 2017-2018, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who used the NIHSS scale were also most often found in VCCHEMS (respectively: in 2017 – 89.2 %, 88.6 % and 92.9 % in men and 85.7 %, 87.2 % and 74.4 % for women; in 2018 – 91.9 %, 92.0 % and 91.2 % for men and 88.6 %, 89.4 % and 79.2 % for women). In 2019, women with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who did not use the NIHSS scale (58.9%, 58.8 % and 60.0 %, respectively) were most often found in VCCHEMS; in men of similar groups, the percentage of persons who were and were not assessed for stroke severity on the NIHSS scale was almost the same.

In the stroke unit VRCPNH in 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who underwent neuroimaging upon admission were found most often (respectively: in 2017 – 97.7 %, 98.9 % and 91.9 % for men and 97.6 %, 98.4 % and 92.0 % for women; in 2018 – 98.7 %, 98.9 % and 97.8 % for men and 99.5 %, 99.4 % and 100 % for women; in 2019 – 99.3 %, 99.6 % and 97.4 % for men and 99.4 %, 99.3 % and 100 % for women). In 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who underwent neuroimaging at admission were found most often in VCCHEMS too (respectively: in 2017 – 85.8 %, 95.5 % and 85.7 % in men and 84.8 %, 94.9 % and 92.3 % for women; in 2018 – 96.8 %, 97.5 % and 91.2 % for men

and 98.0 %, 99.6 % and 79.2 % for women; in 2019 – 95.1 %, 95.7 % and 90.0 % in men and 99.4 %, 100 % and 90.0 % in women).

In the stroke unit VRCPNH in 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, in whom neuroimaging was performed within the first hour after admission were found most often (respectively: in 2017 – 97.1 %, 96.7 % and 83.8 % for men and 98.9 %, 98.4 % and 76.0 % for women; in 2018 – 96.2 %, 96.3 % and 95.6 % for men and 94.1 %, 93.4 % and 100 % for women; in 2019 – 97.9 %, 98.0 % and 97.4 % for men and 94.9 %, 94.1 % and 100 % for women). A completely different picture is observed in VCCHEMS in 2017-2019. Thus, in 2017-2018, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who did not undergo neuroimaging within the first hour after admission were found most often (respectively: in 2017 – 80.3 %, 81.2 % and 73.8 % in men and 83.0 %, 84.5 % and 74.4 % in women; in 2018 – 66.8 %, 68.5 % and 52.9 % in men and 64.1 % and 66.0 % in women, and in women with hemorrhagic stroke the percentage of persons which was performed and not performed neuroimaging during the first hour after admission was the same). In 2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who underwent neuroimaging within the first hour after admission (56.3 %, 56.8 % and 55.0 % in men and 55.2 %, 53.6 % and 80.0 % in women respectively) were most often found in VCCHEMS.

In the stroke unit VRCPNH in 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke who were screened for dysphagia were found most often (respectively: in 2017 – 83.1 %, 82.2 % and 89.2 % in men and 84.2 %, 85.6 % and 76.0 % in women; in 2018 – 98.4 %, 98.5 % and 97.8 % in men and 100 %, 100 % and 100 % in women; in 2019 – 99.7 %, 100 % and 97.4 % for men and 98.9 %, 98.7 % and 100 % for women). In 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke who were screened for dysphagia were most often found in VCCHEMS too (76.1 %, 76.9 % and 71.4 % of men and 76.7 %, 77.0 % and 77.4 % for women; in 2018 – 90.6 %, 91.3 % and 85.3 % for men and 89.2 %, 89.7 % and 83.3 % for women; in 2019 – 90.7 %, 91.4 % and 85.0 % for men and 92.6 %, 92.8 % and 90.0 % in women).

In the stroke unit VRCPNH in 2017-2019, patients with stroke in general and, in particular, representatives with ischemic stroke who underwent atrial fibrillation screening (respectively: in 2017 – 62.4 % and 57.5 % in men and 57.9 % and 52.4 % for women; in 2018 – 68.3 % and 79.8 % for men and 60.4 % and 67.5 % for women; in 2019 – 67.6 % and 78.2 % for men and 61.1 % and 70.4 % for women). A completely different picture is observed in VCCHEMS in 2017-2019. Patients with stroke in general and, in particular, representatives with ischemic stroke who did not undergo atrial fibrillation screening were found in VCCHEMS more often (respectively: in 2017 – 49.2 % and 56.1 % in men and 44.5 % and 50.5 % in women; in 2018 – 54.2 % and 60.9 % for men and 41.8 % and 45.0 % for women; in 2019 – 52.2 % and 58.0 % for men and 48.5 % and 51.6 % for women).

In the stroke unit VRCPNH in 2017-2019, patients with stroke in general and, in particular, representatives with ischemic stroke who underwent ultrasound of the vessels of the neck (respectively: in 2017 – 66.1 % and 75.5 % in men and 60.3 % and 68.5 % for women; in 2018 – 77.6 % and 90.6 % for men and 70.6 % and 78.9 % for women; in 2019 – 76.7 % and 88.7 % for men and 71.4 % and 82.2 % for women). A completely different picture is observed in VCCHEMS in 2017-2019. Patients with *stroke in general* and, in particular, representatives with *ischemic stroke* who did not undergo ultrasound of the vessels of the neck were found in VCCHEMS more often (respectively: in 2017 – 74.4 % and 84.1 % in men and 82.4 % and 93.2 % in women; in 2018 – 67.4 % and 75.7 % for men and 69.9 % and 75.5 % for women; in 2019 – 67.0 % and 75.3 % for men and 69.9 % and 74.5 % for women).

In the stroke unit VRCPNH in 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who were examined by a physical therapist and speech therapist (respectively: in 2017 – 87.9 %, 87.4 % and 91.9 % for men and 86.1 %, 85.9 % and 88.0 % for women; in 2018 – 99.7 %, 96.6 % and 100 % for men and 100 %, 100 % and 100 % for women; in 2019 – 97.2 %, 96.8 % and 100 % in men and 96.6 %, 98.0 % and 87.0 % in women). In 2017-2019, patients with stroke in general and, in particular, representatives with ischemic and hemorrhagic stroke, who were examined by a physical therapist and speech therapist were also most often found in VCCHEMS (respectively: in 2017 – 80.1 %, 80.2 % and 78.6 % for men and 80.0 %, 80.1 % and 79.5 % for women; in 2018 – 90.3 %, 91.3 % and 82.4 % for men and 94.4 %, 94.7 % and 91.7 % for women; in 2019 – 94.5 %, 94.4 % and 100 % in men and 95.1 %, 95.4 % and 90.0 % in women).

In contrast to clinical work, epidemiological studies operate with data on a significant number of patients who are actively identified by neurologists using registers and can be observed from the first days of stroke to the residual period of the disease. The scale of such a database of stroke patients, collected over 2-3

years of laborious work, makes it obvious irrationality of its fragmentary use to obtain several epidemiological indicators, while the possibility of studying at the population level a range of clinical problems associated with stroke is open [5, 6].

Until now, the use of registry materials as a basis for clinical trials of stroke has been constrained by the low level of hospitalization of stroke patients, as well as insufficient equipment of hospitals, which received patients with acute cerebrovascular disorders. This affected, first of all, the quality of clinical and instrumental examination of patients and, in particular, did not allow for a thorough diagnosis of the nature of stroke, qualitative assessment of pathogenetic mechanisms of its development, which is now mandatory for full clinical development [9, 10].

In recent years, the situation has significantly improved due to significant changes in the organization and maintenance of registers. Thus, the possibilities of using neuroimaging (CT/MRI) methods in the most acute stage of stroke have significantly expanded, the protocol of epidemiological studies includes unified scales and tests that allow for both qualitative and quantitative assessment of patients in the dynamics; it was mandatory to include an examination by related specialists from the multidisciplinary team (speech therapist, physical therapist, neurorehabilitation specialist, etc.).

Conclusion

The obtained results showed that the range of problems studied using the epidemiological method of the register is quite wide. The data of stroke registers make it possible to identify the main factors that allow to objectively assess the state of diagnosis in patients with stroke and its effectiveness, which radically changes the importance of data for practical health care. Significantly, most of the indicators described above can only be obtained by implementing a stroke registry program. Despite the widespread use of neuroimaging techniques by data registries, the criteria for diagnosing stroke in population-based studies remain predominantly clinical.

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