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Pacientes atendidos com suspeita de AVC em Unidades de Pronto Atendimentos do município no Rio de Janeiro: o olhar da gestão

Patients treated for suspected strokes in Emergency Care Units in the municipality of Rio de Janeiro: the management's perspective

Pacientes atendidos por sospecha de ACV en las Unidades de Emergencia del municipio de Rio de Janeiro: perspectiva de los gestores

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RESUMO

Objetivo: analisar o fluxo assistencial dos pacientes com suspeita de AVC hiperagudo nas Unidades de Pronto Atendimento (UPAs) do Município do Rio de Janeiro. **Métodos**: estudo observacional com abordagem descritiva e quantitativa, com a realização de análise documental dos prontuários dos usuário do Sistema Único de Saúde (SUS) em dez (10) UPAs, do município do Rio de Janeiro, no período de janeiro de 2020 a janeiro de 2023. **Resultados**: foram observados 1.286 pacientes que buscaram atendimento nestas unidades com suspeita diagnóstica de AVC nos últimos três anos. A média de 321 atendimentos por ano. Entre esses, foi observado um tempo médio de atendimento elevado, de 8,24 minutos do registro até a classificação e desta, até o atendimento médico, de 27,18 minutos. Além disso, foi evidenciada diferença estatisticamente significativa entre sexo e idade (p-valor de <0,001 - teste de *Kruskal-Wallis)*, sendo as mulheres acometidas pelo AVC cinco anos mais tarde que os homens e uma diferença entre o tipo de alta e dias de internação, sendo visualizado que os pacientes que tiveram baixa do sistema por óbito ficaram em média cinco dias internados nas unidades (p valor de <2e-16 -Teste ANOVA). **Conclusão**: foram encontradas diversas oportunidades de melhoria no atendimento do paciente com AVC hiperagudo nas UPAs. Assim, foram acordadas algumas prioridades para a melhoria do serviço prestado, como: redução do tempo de porta-agulha; elaboração e implementação de um protocolo gerenciado; treinamento e aprimoramento da equipe assistencial e trabalhadores da saúde, para oferecer uma assistência integral e resolutiva para o paciente.

Descritores: Acidente vascular cerebral; Serviços de saúde; Doença crônica.

ABSTRACT

Objective: to analyze the flow of care for patients with suspected hyperacute stroke in the Emergency Care Units (UPAs) of the city of Rio de Janeiro. **Methods**: an observational study with a descriptive and quantitative approach, with a documentary analysis of the medical records of

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users of the Unified Health System (SUS) in ten (10) UPAs in the municipality of Rio de Janeiro, from January 2020 to January 2023. **Results**: 1,286 patients who sought care at these units with a suspected diagnosis of stroke in the last three years were observed. The average number of visits per year was 321. Among these, a high average time of 8.24 minutes from registration to classification and 27.18 minutes from registration to medical attention was observed. In addition, there was a statistically significant difference between gender and age (p-value <0.001 - Kruskal-Wallis test), with women being affected by stroke five years later than men and a difference between the type of discharge and days of hospitalization, with patients who were discharged from the system due to death staying an average of five days in the units (p-value <2e-16 - ANOVA test). **Conclusion**: aeveral opportunities for improvement were found in the care of hyperacute stroke patients in the UPAs. A number of priorities were agreed upon for improving the service provided, such as: reducing the time taken to use a needle holder; drawing up and implementing a managed protocol; training and improving the care team and health workers, in order to provide comprehensive and resolutive care for the patient.

Descriptors: Stroke; Health services; Chronic disease.

RESUMEN

Objetivo: analizar el flujo de atención a pacientes con sospecha de ACV hiperagudo en las Unidades de Atención de Urgencia (UPAs) de la ciudad de Rio de Janeiro. **Métodos:** se trata de un estudio observacional con abordaje descriptivo y cuantitativo, con análisis documental de las historias clínicas de los usuarios del Sistema Único de Salud (SUS) en diez (10) UPAs del municipio de Río de Janeiro, de enero de 2020 a enero de 2023. **Resultados**: se observaron 1.286 pacientes que buscaron atención en estas unidades con sospecha diagnóstica de accidente cerebrovascular en los últimos tres años. Un promedio de 321 asistencias por año. Entre ellas, se observó un tiempo medio elevado de 8,24 minutos desde el registro hasta la clasificación y de 27,18 minutos desde el registro hasta la atención médica. Además, se observó una diferencia estadísticamente significativa entre el sexo y la edad (p-valor <0,001 - test de Kruskal-Wallis), con las mujeres sufriendo un ictus cinco años más tarde que los hombres, y una diferencia entre el tipo de alta y los días de hospitalización, con los pacientes que fueron dados de alta del sistema por fallecimiento permaneciendo una media de cinco días en las unidades (p-valor <2e-16 - test de ANOVA). **Conclusión**: se encontraron varias oportunidades de mejora en la atención a los pacientes con ictus hiperagudo en las UPA. Se acordaron una serie de prioridades para la mejora del servicio prestado, tales como: reducción del tiempo de utilización de la aguja; elaboración e implantación de un protocolo gestionado; formación y mejora del equipo asistencial y del personal sanitario, con el fin de prestar una atención integral y resolutiva al paciente.

Descriptores: Accidente cerebrovascular; Servicios sanitários; Enfermedades crónicas.

INTRODUCTION

Technological advances in health, improvements in urban health infrastructure and advances in social indicators have promoted the transition of the Brazilian demographic pyramid since the last century. Over this period, the Brazilian population has experienced a rise in average life expectancy, which has led to the emergence of new socio-economic and health challenges, given that the ageing population will require public policies to promote and guarantee adequate senescence (FAN et al.,2023).

In the field of Public Health, longevity has brought the emergence of Chronic Non-Communicable Diseases (CNCDs), which challenge health authorities to draw up an action plan aimed at prevention, treatment, rehabilitation and management of comorbidities (FAN et al.,2023; RESSETTO et al.,2019). These current demographic and health changes give Brazil approximately 20 years to adapt (RESSETTO et al.,2019). In this scenario, data from DATASUS draws attention by showing that in 2005 there were 2,304,544 (19.4%) hospitalizations of elderly Brazilians and in 2015 there were 2,852,393 (24.5%), which shows an increasing trend (RESSETTO et al.,2019). According to national data, Cerebral Vascular Accident (CVA) is the third leading cause of hospitalizations in Brazil (RESSETTO et al.,2019).

From a global perspective, cerebrovascular diseases rank second among the health problems with the highest mortality and morbidity rates, with variable potential for disability for individuals (JOHNSON et al. 2019). The neurological damage caused is classified into two subtypes, according to its genesis: hemorrhagic, 30%, and ischemic, which is responsible for 70% of all strokes, with a risk of recurrence throughout life (FAN et al.,2023). Given the negative socio-economic and family impact on stroke victims, it is a public health emergency to develop health strategies to tackle this disease. It is necessary to train health teams in urgent/emergency care, create adequate infrastructure, flowcharts, draw up care protocols, integrate primary care to control modifiable risk factors and raise awareness among users of the Unified Health System (SUS). In this direction, some Brazilian states have set up Stroke Reference Centers, which promote training in recognizing the signs and symptoms of stroke, raising awareness of the disease and clarifying two outcome-

modifying therapies: thrombolytic therapy or thrombectomy (SCHNEIDER et al.,2018; RANGEL et al.,2023).

In this sense, studies have shown that team training and strategies to reduce needle-port time improve thrombolytic administration rates within the therapeutic time window (RANGEL et al. 2023; BRANDÃO PC, et al., 2023). Corroborating this, a study carried out in a stroke unit in the interior of the Northeast has shown an increasing number of thrombolyzed patients since it was set up, probably due to the pre-hospital education carried out in the urgent and emergency units of which they are references (RANGEL et al.,2023). It is therefore very important that stroke patients are cared for as part of a network. With this in mind, MS/GM Ordinance No. 665 of April 12, 2012, updated by Ordinance No. 800/2015, was instituted, which includes the Stroke Care Line as an integral part of the Urgency and Emergency Care Network (RUE) (BRASIL, 2020).

The stroke care line describes the patient's itinerary between the different health care units, defining the best way of conducting diagnostic and therapeutic possibilities, starting from the point where the patient is. In this way, the stroke patient needs timely and assertive care to define the type of therapeutic approach that is appropriate for the patient, with the potential to resolve arterial obstruction and sequelae (BRASIL, 2020).

Diagnostic screening and the decision between clinical or surgical treatment must be made as soon as possible, since one of the criteria for the institution of thrombolysis is that it be started within 4 hours and 30 minutes of the onset of symptoms. For this reason, it is essential to transfer the patient to a referral hospital for stroke treatment (RANGEL et al. 2023). With this, the better trained the team and the faster the protocol is carried out, the better the patient's prognosis will be, thus demonstrating the importance of a well-defined line of care so that there are no gaps in the therapeutic process (BRASIL, 2020).

In this scenario, the Emergency Care Units (UPAs) are part of the RUE, making up a network organized in conjunction with the Mobile Care Service (SAMU-192), most of which function as the first access point for stroke patients. It is therefore necessary for these units to have well-aligned care processes and trained professionals to offer an agile and resolutive service to these patients (BRANDÃO PC, et al., 2023).

For this reason, it is essential that the population has access to specific stroke-related care in Emergency Care Units, with a rapid approach that contributes to a favorable clinical outcome. Considering the above, this study aims to analyze the flow of care for patients with suspected hyperacute stroke in the UPAs of the city of Rio de Janeiro.

METHODS

This is a cross-sectional study, with a descriptive and quantitative approach, carried out in ten Emergency Care Units that make up the care networks in the municipality of Rio de Janeiro.

It should be noted that the names of the UPAs were coded with numbers from 1 to 10. In addition, this study followed all ethical precepts and was approved by the Research Ethics Committee (CEP) with favorable opinion number 037755/2023, on June 23, 2023, and CAAE: 68811423.6.0000.5279. The use of the Free and Informed Consent Form (FICF) was waived because a retrospective evaluation of the medical records was carried out, which did not allow direct contact with the patients.

A documentary analysis was carried out of the medical records of the ten UPAs in the municipality of Rio de Janeiro, from January 2020 to January 2023, where the care of patients treated with ICD I64, ischemic or hemorrhagic stroke, in the last three years was analyzed.

The data was stratified by PowerBI and extracted from the electronic medical records using the units' software. At this stage, clinical data was collected, such as: age group; gender; length of service; length of hospitalization; intervention and reason for discharge.

ICD I64 was taken as the dependent variable. It was extracted in XML and formatted using the PowerBI platform for dynamic data visualization, mean, median and standard deviation. The independent variables analyzed were: gender, age, neighborhood, UPAs, time to classification, time to medical care, length of hospitalization, reason for hospitalization and days of hospitalization. For statistical analysis, the mean, median and standard deviation were calculated.

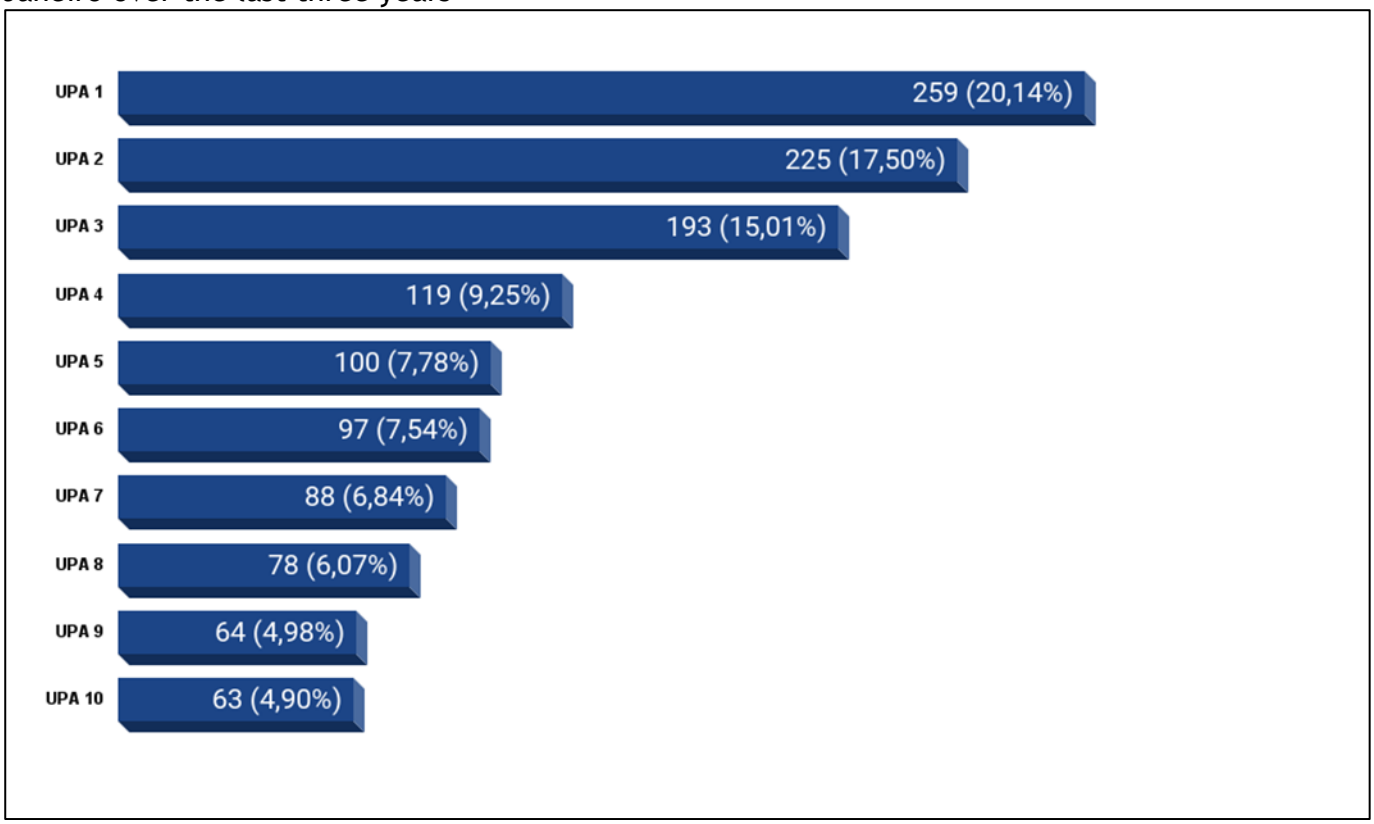
The Shapiro-Wilk normality test was also carried out, followed by the Kruskal-Wallis and Wilcoxon tests for non-parametric variables and the ANOVA test for parametric variables. Rcommander, version 4.2.3, was used to identify whether there was an

association between stroke and the independent variables. A p-value of less than 0.05 was adopted as the level of statistical significance for all the tests.

RESULTS

A total of 1,286 patients with a suspected diagnosis of ischemic or hemorrhagic stroke were admitted within three years to the ten UPAs that were part of the study. The average number of suspected strokes per year was 321. The figure below shows the percentage of care per unit (Figure 1).

Figure 1 - "n" of patients treated for suspected strokes at ten UPAs in the city of Rio de Janeiro over the last three years



Source: Garcia AS, et al., 2023.

About gender, 652 (50.7%) were men and 634 (49.3%) were women. Of these, the average age was 66 years (±13.7). There was also a significant difference between gender and age, with the female population being affected by stroke later, at an average of 70 years, while the men were affected at an average of 65 years, "p value" less than <0.001 - Kruskal-Wallis test (Figure 2).

Figure 2 - Average age of patients diagnosed with stroke by gender

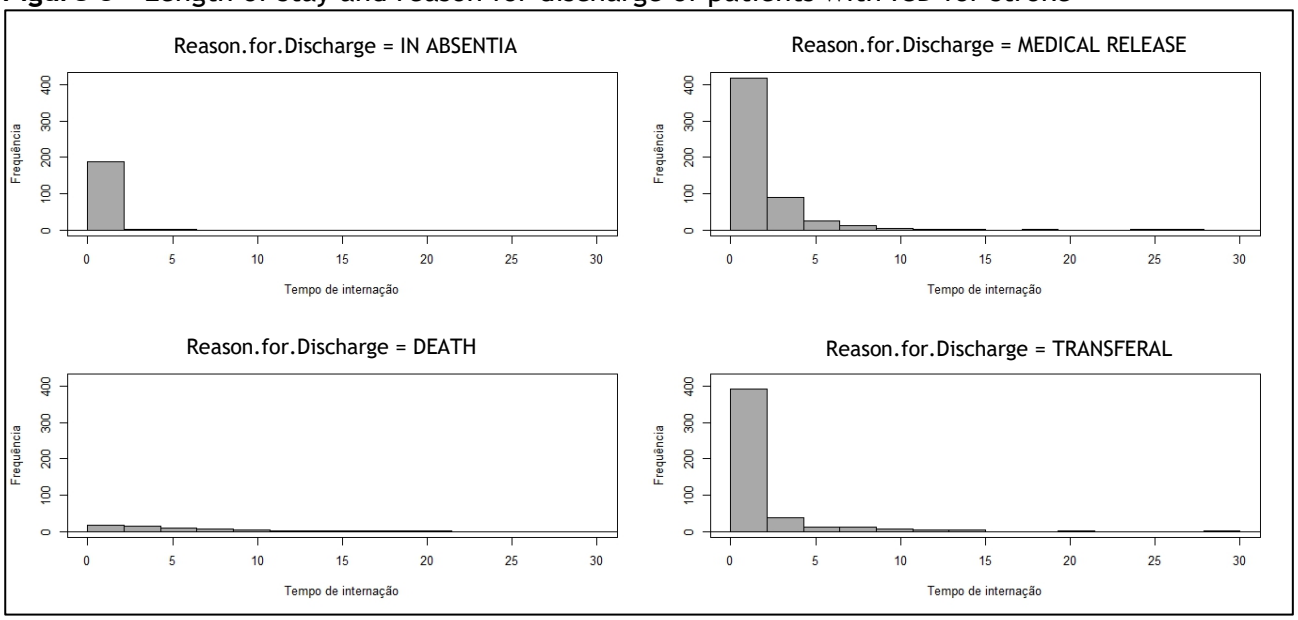
Source: Garcia AS, et al., 2023.

When analyzing care over the last three years, it was possible to see that the average time it took patients from registration to risk classification was 8.24 minutes and from registration to medical care was 27.18 minutes. The average length of stay was 1.6 days, with a median of 1. With regard to the reason for discharge, 557 (43.48%) patients were discharged medically, 473 (36.92%) were transferred, 59 (4.61%) died and 192 (14.99%) were discharged in absentia (Figure 3).

It was also possible to see that patients with suspected strokes who died in the unit were hospitalized for an average of 5 days; patients who were discharged and transferred stayed an average of 1.6 days; those discharged in absentia left on the same day, with a significant p-value <2e-16 (ANOVA test).

It should also be noted that of the 156 (14.08%) patients who received a definitive diagnosis of stroke, 20 were discharged in absentia, 66 were discharged medically, 7 died and 63 were transferred. Among the patients who remained with a suspected diagnosis, there were 952 (85.92%), of whom 173 were discharged in absentia, 417 were medically discharged, 42 died and 320 were transferred.

Figure 3 - Length of stay and reason for discharge of patients with ICD for stroke



Source: Garcia AS, et al., 2023.

DISCUSSION

This article looked at the care given to patients with a suspected diagnosis of stroke over the last three years in ten UPAs in the municipality of Rio de Janeiro, based on data from recent studies showing that timely clinical treatment of ischemic stroke contributes to a better prognosis for patients treated in the acute phase, due to intravenous thrombolysis (GARCÍA-TORNEL Á, et al., 2022; KIM DH, et al., 2018). Thus, observing care over a three-year period helps to define the priorities that should be addressed in stroke care in order to reduce the negative impacts of this health problem.

After all, stroke is the leading cause of death and disability in Brazil. Each year, around 68,000 deaths are recorded, according to the Ministry of Health (MS). Of these, only 30% of survivors recover completely and at least 60% will depend on family members or caregivers due to permanent sequelae (BARELLA RP, et al., 2019). It is therefore imperative to know how this patient has been cared for in secondary urgent and emergency care units.

Regarding the categorization of the population included in the study, an average age of 66 years was found, which is similar to that found in the literature (BARELLA RP, et al., 2019; ROXA et. al. 2021). Regarding gender, it was observed that women were affected

earlier than men, which differs from other studies that have been carried out previously (MITTA N, et al., 2021; PHAN HT, et al., 2019). Corroborating this, Mitta N, et al. (2021), report that there are gender differences in stroke, with mostly older women being affected, but with more unfavorable outcomes than men. Unfavorable outcomes at advanced ages may be associated with a physiological decrease in cerebral blood flow and subsequent neurological dysfunction (PHAN HT, et al., 2019).

This study found that during the period analyzed, 1,286 SUS users received medical care initially categorized as ICD I64 at the UPAs included in this study. In one municipality in Rio de Janeiro, Nova Iguaçu, a general hospital had 120 admissions of stroke patients in less than a month (PREFEITURA DE NOVA IGUAÇU, 2022). However, it should be noted that this is a tertiary unit, so it acts as a reference for the municipality. However, the number of patients treated at the units included is noteworthy and may not have shown the real scenario of hyperacute strokes during the period observed. Perhaps this is due to the lack, until now, of a managed protocol established within these emergency care units that allows these epidemiological data to be visualized and monitored.

It should also be noted that of these patients included in this study, 473 were transferred to health units with greater technological complexity and hospitalization capacity, 557 were discharged from the UPA and only 156 patients had final ICD I64 diagnostic confirmation reported in their medical records. Thus, according to the data available, diagnostic confirmation of acute stroke corresponded to 12.13% of suspected cases, with an average of 4.3 confirmed cases per month. This draws attention to a possible underreporting of the definitive diagnosis and emphasizes the need to improve the recording of this data for management and follow-up by the management team.

With this in mind, care indicators should be created and standardized for patients with suspected hyperacute strokes, such as the time between: a) the patient's admission to the unit until registration in the regulation system; b) registration in the regulation system and transportation to the destination unit; c) initial diagnosis and reported imaging examination; c) initial diagnosis and start of thrombolysis, when indicated.

For this reason, it is important that neurological clinical signs are identified almost immediately after the patient is admitted to the health care unit, and that vital signs are

checked and medical assessment is carried out under a RED risk classification, configuring the diagnostic hypothesis of hyperacute stroke. Within the investigative scope, the Cincinnati Scale becomes an important tool for the rapid detection of neuro-muscular disorders, which justifies the patient's entry into the Priority Care ROUTE, with medical assessment as soon as possible. The clinical examination will then decide whether or not to continue the clinical investigation.

In addition, this high priority in care and opening of the protocol seeks to reduce the time it takes to register and provide medical care to patients, which in this study was considered to be high, thus speeding up diagnostic confirmation and the start of treatment. With this, it helps management to identify problems and gaps in clinical practice, after all, the lack of a managed protocol can impact on the following variables: time between risk classification and medical care; adoption of a standardized therapeutic plan; completion of appropriate auditable forms; training of UPA workers (MARTINS et. al. 2019).

However, it is understood that the care of stroke patients takes place in a network, so it is necessary for the professionals in the units to understand how communication and integration between the systems takes place, in order to prioritize the assessment of this patient and, consequently, reduce the door-to-needle time (BRANDÃO; LANZONI; PINTO; 2022). In addition, studies show that standardization and mechanisms that facilitate multidisciplinary communication result in effective care and greater engagement of the health team in the care of stroke patients (ANDREW et. al. 2019; BRANDÃO; LANZONI; PINTO; 2022). Studies report that the healthcare team identifies the use of protocols, training and engaged leadership in stroke patient care as a strength (ANDREW et. al. 2019).

It is based on studies that show that the correct use of thrombolytic drugs, within the previously established times, results in positive clinical outcomes for the patient, once again reinforcing the need for a well-defined flow of care in urgent and emergency care units. In this sense, a recent systematic review with meta-analysis showed that improved screening of stroke patients is significantly associated with an increase in potential candidates for thrombolysis (BARELLA RP, et al., 2019; CHOWDHURY SZ, et al., 2021; LOPES et. al. 2023).

For this reason, managing the flow of care for patients with suspected strokes helps the management team to identify ways of increasing the chance of successful thrombolytic

administration and reducing the possibility of sequelae after an ischemic event. Thus, the intention is to reduce the time spent at the needle, directing this patient to a unit with specialized technological equipment, to perform CT and administer the thrombolytic drug in an appropriate time, since randomized studies have shown that this is a beneficial strategy for rapid and effective treatment (CHOWDHURY SZ, et al., 2021; GARCÍA-TORNEL Á, et al., 2022; KIM DH, et al., 2018). Corroborating this, a study has shown that in countries with tomography, it is possible to achieve a door-to-needle time of less than 2 hours (AREF et. al. 2023).

It is known that developing countries will take much longer to advance in the care of stroke patients than developed countries. However, in Brazil there are 156 stroke centers, 24 of which are located in hospitals where thrombolysis is guided by telemedicine, setting it apart from other underdeveloped countries (MARTINS et al. 2019).

The current municipal health system is structured with various entry points for urgent and emergency services, including the UPA. As these are non-hospital health units, they vary in terms of the availability of Computed Tomography on site. Patients are therefore entered into the zero vacancy system and directed to an imaging test at a public referral hospital. Faced with this health reality, it is up to the management team to build indicators that make it possible to monitor and evaluate service provision, in accordance with stroke care protocols, since the longer the time between the onset of signs/symptoms suggestive of stroke and the skull CT report, the greater the risk of disability (GARCÍA-TORNEL Á, et al., 2022). In addition, as highlighted in the literature, stroke is among the leading causes of death in the adult population of Latin America and is treatable through the adoption of strategies based on the optimization and organization of the service (MARTINS et al. 2019).

The clinical outcome of the Transfer Discharge and Medical Discharge units showed an average length of stay of 1.6 days for patients with mild to moderate clinical complexity. However, the population with a diagnosis of stroke who had clinical complications had an average hospital stay of 5 days.

In Rio de Janeiro, the UPAs use two hospital regulation systems: the State Regulation System (SER) and the "zero vacancy" system. Patients with hyperacute strokes must be inserted into the zero vacancy system and promptly regulated to a specialized unit.

However, given these dynamics, there is a need for these units to have instruments to monitor the outcome of these patients. In addition, the training of medical staff to complete their care needs to be reinforced, since most patients remained under diagnostic suspicion and others did not have their care completed.

This data may reveal weaknesses in the process, especially with regard to the system used to store the data, since the absence of a managed protocol limits management in the effective monitoring of suspected hyperacute strokes. This lack of protocols and training constitute barriers to the care of stroke patients, which can be resolved through planning and management intervention (BRANDÃO PC, et al., 2023).

Some of the limitations of this study were the lack of a managed protocol in the units, which may have led to underreporting of stroke cases and inaccurate analysis of this data. In addition, only ICD I64 was used in this study, and patients with suspected strokes may have been admitted using another code, ICD 10, diseases of the circulatory system, for example. Thus, the number of visits observed over three years may not be consistent with the reality of the units.

CONCLUSION

This study highlighted some opportunities for improvement in the ten UPAs observed, which need to be evaluated, such as: reducing the time it takes to see the patient, consequently reducing the time spent with a needle; drawing up and implementing a managed protocol; training and improving the care team and health workers to raise awareness and identify strokes quickly.

Hyperacute stroke is a time-dependent disease, which is why it is necessary to look at care processes and organizational measures in order to improve the performance and recording of these events. As a result, priorities were agreed for the care of these patients in the context of Emergency Care Units, as well as management measures and monitoring of these processes by management.

In view of the above, there is an opportunity to translate these measures into higher success rates of appropriate therapy and, consequently, a reduction in morbidity and mortality. Finally, it should be emphasized that the implementation of a well-designed internal stroke management protocol and the strengthening of the points of weakness highlighted will be the

beginning of an unquestionable gain for the health of the population.

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