ABSTRACT:
Aim: To analyze the knowledge of young adults about stroke.
Method: Quantitative, cross-sectional study in a non-clinical environment. Convenience simple. Through the elementary school of Evora, parental figures were asked to participate. Ethical aspects were respected. Self-fill questionnaire returned after one week.
Results: 147 men (44.5%) participated, 183 women (55.5%), with a mean age of 42.25 years (SD = 5.00). The most commonly reported risk behavior for stroke is smoking (56.5%), followed by hypertension (28.8%) and hypercholesterolemia (28.8%). The main sources of information are television (93.2%) and friends (89.4%). In immediate witness assistance, the attitudes of the participants would be mostly incorrect. There is a gap between knowledge and the respective action.
Conclusions: there is a risk behavior, observed also among other studies, with a population of older people. The results show a lack of literacy in health. It will be urgent to develop projects that inform and exemplify the risks of behavior. The performance of the person with stroke must be taught and trained to the citizen. The dissemination of information about stroke is urgent in the region. Young adults, as educators, can intervene to reduce cases in the generation of their children.

Keywords: knowledge; stroke; risk factors; Attitude.

RESUMO:
Objetivo: Analisar o conhecimento de jovens adultos sobre o AVC.
Resultados: Participaram 147 homens (44,5%), 183 mulheres (55,5%), com idade média de 42,25 anos (DP = 5,00). O comportamento de risco mais referido ao acidente vascular cerebral é o tabagismo (56,5%), seguido da hipertensão (28,8%) e hipercolesterolemia (28,8%). As principais fontes de informação são televisão (93,2%) e amigos (89,4%). Na ajuda imediata das vítimas, as atitudes dos participantes seriam em sua maioria incorrectas, existindo uma lacuna entre o conhecimento e o respetivo desempenho.

Conclusões: Existem comportamentos de risco entre os participantes, que são observados em outros estudos, mas com população de idosos. Os resultados detetam carência na literacia em saúde. Será urgente o desenvolvimento de projetos que informem e exemplifiquem os riscos dos comportamentos. A ação perante a pessoa vítima de acidente vascular cerebral, deve ser objeto de educação e treino do cidadão. A informação sobre a temática é urgente na região. Jovens adultos, como educadores, pode intervir para reduzir os casos na geração dos filhos.

Palavras-chave: conhecimento; acidente vascular cerebral, fatores de risco.

RESUMEN:
Objetivo: Analizar el conocimiento de adultos jóvenes sobre el accidente cerebrovascular.
Resultados: Participaron 147 hombres (44,5%), 183 mujeres (55,5%), con la edad media de 42,25 años (DP=5,00). El comportamiento de riesgo más referido para el accidente cerebrovascular es el tabaquismo (56,5%), siguiendo la hipertensión (28,8%) y la hipercolesterolemia (28,8%). Las principales fuentes de información son la televisión (93,2%) y los amigos (89,4%). En la ayuda inmediata, las actitudes de los participantes serían en la mayoría incorrectas, existiendo un desfase entre el conocimiento y la respectiva actuación.

Conclusiones: Existen entre los participantes comportamientos de riesgo observados en otros estudios con población de personas mayores. Los resultados detectan déficit de alfabetización en salud. Será urgente el desarrollo de proyectos que informen y ejemplifiquen, los riesgos de los comportamientos. La actuación ante la persona con accidente cerebrovascular, debe ser objeto de enseñanza y de entrenamiento al ciudadano. La divulgación de información sobre accidente cerebrovascular es urgente en la región. Los adultos jóvenes, como educadores, pueden intervenir para disminuir los casos en la generación de sus hijos.

Palabras Clave: conocimiento; accidente cerebrovascular; factores de riesgo.

INTRODUCTION

Cerebrovascular diseases are dysfunctions that temporarily or permanently affect blood flow. They contribute to mortality in the world, this disease, cerebrovascular accident (CVA), has been the second cause of death for 16 years (1). For some decades and in different places, nurses have considered this pathology an important subject for research (2). The non-modifiable risk factors refer to the progression of age or genetic patrimony. CVA in age context has varied expressions on immediate and future damages for the individual.

It is reported as uncommon in young adults (i.e., 10-15%) the age range 45-49 years- old still register differences in incidence that vary between 5% and 20% (3). However, in young adults, mortality is high and morbidity is associated with distress due to the consequences they face in the most productive phase of life (3-5). In women, the specific factors related to pregnancy, puerperium and the use of contraceptives or pre-climacterics increase the risk (5, 6). Considering the genetics linked to ethnic factors, the greatest risks are found in non-Hispanic black women versus minor risks in Caucasian women (6). If up to 35-44 years-old men have a higher prevalence, regarding the range 45-54 years-old, it becomes higher in women (4).
Modifiable factors, on the other hand, manifest themselves in multiple ways in unhealthy behaviours, which reflect the level of education. Hypertension, diabetes, smoking, obesity, dyslipidaemias and inactivity can be highlighted. Other abusive behaviours such as alcohol, salt, sugar can potentiate the previous ones. Other aspects, such as socioeconomic position affect some modifiable factors, showing an inverse association with the incidence and mortality of stroke. In Portugal, CVA is also the second leading cause of death. But in the South, in the Alentejo region, the situation is more serious, both in terms of mortality (57.2 / 100,000 inhabitants) and morbidity. In the Alentejo, smoking shows higher values in any age group compared to the data of the country. With regard to excess weight, it is less frequent compared to other regions, but the prevalence of hypertension and diabetes is the highest in the country.

Recognising immediately CVA, quick medical aid and moving a person to a health unit in a period of time not exceeding 3 hours can lead to a different outcome to the problem. In Portugal, the Directorate General of Health (DGS Portuguese acronym) considers health education relevant, which includes how population can recognise warning signs of threatening situations, as well as the activation Via Pre-hospital CVA Vía Verde pathway. The CVA Via Verde is an organised strategy to care patients with suspected stroke in progress. It is regulated by the DGS. The health emergency number (112) activates the CVA Via Verde that sends the means and transfers the person to the nearest hospital that has a CVA Unit since early care can reverse an ongoing stroke.

Apart from the resources related to health services and the immediate care provided by witnesses, patient’s recognition of stroke signs or symptoms is essential. Knowledge about such a question can be acquired through educational programs. Some studies show that, in risk groups, the information provided remains for almost five years. Programs focused on specific groups are more effective. The design depends on risk factors, the context and the own methodology.

In the Alentejo, knowledge about stroke in young adults has not been studied. There is no standard reference that shows a global understanding of citizens' preparedness to avoid or intervene in a CVA situation, nor are information needs identified. If there were knowledge, conditions to make the most appropriate decisions in a short period of time could be created. Considering the position that young adults have between the generations of their parents and their children, the present study is carried out with the aim of analysing their knowledge about the signs and symptoms, as well as the promptness of first aid before an episode of stroke.

**METHODOLOGY**

Quantitative, cross-sectional descriptive study. The participants are a sample of adult citizens. The collection of the sample was obtained from the parents of children who are enrolled in basic education. The proposed inclusion criteria were: living in the city of Évora, being less than 60 years old. Parental figures that do not live in the same house as the child were excluded.

This group was selected since these parents belong to young adults’ age group and 3 generations (children, parents and grandparents) live simultaneously in the family. Out of a total of 607 children, 1214 parental figures were estimated. Applying Krejce and
Morgan criteria \(^{(18)}\), 300 subjects were estimated. In order to compensate losses, an additional 20% of the 360 questionnaires were distributed. 338 were fully completed. Eight grandparents who are in charge of education were removed from the study. The study includes 330 participants.

The survey is composed of four sections: a) sociodemographic variables (age, gender, level of education, b) knowledge variables about stroke (ie, signs, symptoms, conditions and associated pathologies), c) CVA risk variables identified by participants (ie, diabetes, hypertension, obesity, hypercholesterolemia, heart disease, smoking) and d) variables of CVA signs (ie, Cincinnati pictogram) and first aid options for a person with suspected CVA.

Based on the risk knowledge variables, the list of possible causing diseases and the signs, the main variable was determined: Knowledge about stroke based on previous studies \(^{(19, 20)}\). The rating of the main variable varied from 0 to 30 points. It was obtained through the sum, considering the correct statements in the 30 questions.

The IBM-SPSS®, version 22 was used for data analysis. Descriptive statistics were applied to characterize the sample. Due to the non-normal distribution in the main variable \((K-S=.123; df=330; p=.000)\) non-parametric tests are used.

The project was sent to the Centre for Research in Health Sciences and Technologies of the University of Évora (CICTS Portuguese acronym), obtaining a positive opinion from the Ethics Commission of the University (i.e., record nº49278, review nº15043). In addition, a permission from the Regional Office of Education of the Alentejo, was obtained to access schools. Collaboration from teachers was requested to contact the parental figures and for the distribution of questionnaires. The questionnaire was delivered, in opaque and closed envelope to the participants and the respective written consent was requested, with guarantee of anonymity and confidentiality. After two weeks, all the questionnaires were completed.

**RESULTS**

147 men (44.5%), 183 women (55.5%), aged between 30 and 55 years old \((M=42.25; \text{DP}=5.00)\) participated, however 15 people did not mention their age. Considering the 170 participants who recognize in themselves risk factors, through the analysis of multiple responses, it is observed that there are 243 references to risk factors. Smoking, hypertension and hypercholesterolemia are the most common ones (Table 1).

| Table 1 – Recognizing in themselves practices or organic risk conditions for CVA |
|-------------------------|------------------|------------------|
| **Answers** | **N** | **Percentage** | **Percentage of Cases** |
| Diabetes | 8 | 3.3% | 4.7% |
| Hypertension | 49 | 20.2% | 28.8% |
| Obesity | 34 | 14.0% | 20.0% |
| Hypercholesterolemia | 49 | 20.2% | 28.8% |
| Heart Disease | 7 | 2.9% | 4.1% |
| Smoking | 96 | 39.5% | 56.5% |
| **Total** | 243 | 100.0% | 142.9% |
When we analyse separately men and women, it is observed that smoking is the most common reference for both sexes. Secondly, the highest perceived risk for men is hypertension (mentioned 32 times, 25.4% male), however, for women hypercholesterolemia is the reference (mentioned 32 times, 27.4% female).

Regarding the 96 smokers, the daily consumption varies between 2 and 40 cigarettes, with a mean of 10 (n = 22, 23.4%). In reference to hypertension, there are 41 (12.9%) participants who take therapeutics, aged between 31 and 50 years-old (M = 44.38, DP = 4.28).

Almost all participants have already heard about stroke (n = 324, 99.1%). The sources from which they obtained information are shown in table 2, highlighting television and friends. The family is the second less frequent source of information.

**Table 2 - Sources of information on CVA theme**

<table>
<thead>
<tr>
<th></th>
<th>Yes (%)</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
<td>302 (93.2%)</td>
<td>22 (6.8)</td>
</tr>
<tr>
<td>Friends</td>
<td>277 (89.4%)</td>
<td>33 (10.6%)</td>
</tr>
<tr>
<td>School</td>
<td>145 (49.8%)</td>
<td>146 (50.2%)</td>
</tr>
<tr>
<td>Consultation/Hospital</td>
<td>191 (64.3%)</td>
<td>106 (35.7%)</td>
</tr>
<tr>
<td>Family</td>
<td>161 (53.5%)</td>
<td>140 (46.5%)</td>
</tr>
</tbody>
</table>

For most people (n=309; 94.5%), stroke can be prevented, but cannot be cured (n=189; 58.3%). Most participants consider that health services provide little information about stroke (n=207; 64.7%).

The main variable shows a level of knowledge about stroke, which varies between 16 and 30 points, with a mean of 23.55 (DP=2.58). There is no significant difference between men and women (U=13522.50; N_{Mas}=147; N_{Fem}=183; p=.933)

With regard to knowledge about stroke, specifically in relation to the position in which the patient should be placed (sitting, lying on one side, did not know what to do), the comparison by pairs shows that participants who would position patient on his/ her side have a higher level of knowledge. That is, through a Kruskall-Wallis test, significant differences in knowledge are verified, in at least one of the groups (H_{(2)}=8.406; p=.015). In the multiple comparisons of Dunn’s test, it can be seen that participants who did not know what to do had significantly lower ratings comparatively to the participants who laid the victim on a lateral position or who sat her down. However, on average, the order of the knowledge of those who would seat the victim is superior compared to those who would choose the lateral decubitus position (figure 1).
Figure 1: Multiple comparisons of Dunn's test for the variable of participants' knowledge based on the resolution of victim's position

Each row tests the null hypothesis that the Sample 1 and Sample 2 are the same. Asymptotic significance (2-side tests) are displayed. The significance level is .05. Significance values have been adjusted by the Bonferroni correction in multiple tests.

Once having carried out the analysis of the knowledge in the care related to breathing, it is verified through Kruskall-Wallis test that there are significant differences (H_{2}=11.287; p=.004). In the multiple comparisons of Dunn's test, participants who did not know what to do presented a significantly lower rating of knowledge than those who asked patient to cough (figure 2).
Figure 2: Multiple comparisons of Dunn’s test for the variable of participants’ knowledge based on the resolution of victim’s ventilation.

Pairwise Comparisons of C19Breathing

<table>
<thead>
<tr>
<th>Sample1-Sample2</th>
<th>Test Statistic</th>
<th>Std. Error</th>
<th>Std. Test Statistic</th>
<th>Sig.</th>
<th>Adj.Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not know:Breathe properly</td>
<td>2.6028</td>
<td>13.098</td>
<td>2.140</td>
<td>0.032</td>
<td>0.097</td>
</tr>
<tr>
<td>Did not know:Ask to cough</td>
<td>5.4330</td>
<td>16.199</td>
<td>3.354</td>
<td>0.001</td>
<td>0.002</td>
</tr>
<tr>
<td>Breathe properly:Ask to cough</td>
<td>-2.6302</td>
<td>13.533</td>
<td>-1.944</td>
<td>0.052</td>
<td>0.156</td>
</tr>
</tbody>
</table>

Each node shows the sample average rank of C19Breathing.

Each row tests the null hypothesis that the Sample 1 and Sample 2 are the same. Asymptotic significance (2-side tests) are displayed. The significance level is .05. Significance values have been adjusted by the Bonferroni correction in multiple tests.

Through a Kruskal-Wallis test for independent samples, it was observed that there were significant differences in relation to the level of knowledge of the participants ($H_{(2)}=10.378; p=.006$), when the three groups of options are considered (i.e., call the emergency number, call 115, do not know what to do). In fact, the people who would call 115 (old emergency number), are those who have higher knowledge. In the multiple comparisons of Dunn’s test, participants who did not know what to do show a significantly lower knowledge than the groups that would call 115 or 112. However, the average order of knowledge of participants who would call 112 is lower than those who would call 115 (Figure 3).
La figura 3 muestra comparaciones múltiples de la prueba de Dunn para la variable de conocimiento de los participantes basado en la resolución para llamar al teléfono de emergencia.

### Tabla de Comparaciones Parciales de Dunn

<table>
<thead>
<tr>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Test Statistic</th>
<th>Std. Error</th>
<th>Std. Test Statistic</th>
<th>Sig.</th>
<th>Adj.Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not know Phone number 112</td>
<td>Did not know Phone number 115</td>
<td>149.500</td>
<td>51.116</td>
<td>2.925</td>
<td>.003</td>
<td>.010</td>
</tr>
<tr>
<td>Did not know Phone number 115</td>
<td>Did not know Phone number 112</td>
<td>98.981</td>
<td>33.884</td>
<td>2.921</td>
<td>.003</td>
<td>.010</td>
</tr>
<tr>
<td>Phone number 112-Phone number 115</td>
<td>Did not know Phone number 112</td>
<td>50.519</td>
<td>39.025</td>
<td>1.295</td>
<td>.195</td>
<td>.686</td>
</tr>
</tbody>
</table>

Cada nodo muestra la media de los rangos de la variable C19 Resources.

Cada fila prueba la hipótesis nula de que la muestra 1 y la muestra 2 son las mismas. Las significaciones asintóticas (2-sided tests) se muestran. El nivel de significancia es .05. Las significaciones se han ajustado por el correctivo de Bonferroni en múltiples pruebas.
DISCUSSION

As young adults, it is relevant that more than half identify themselves as being at risk of stroke. This is in line with the authors who support the growing trend of this pathology in this age group (5). Fortunately, there is a low perception of susceptibility. Some harmful behaviours, such as smoking, are frequently acquired in adolescence and it is difficult to quit them. In fact, smokers have from 2 to 4 times the risk of having stroke throughout their lives, than non-smokers or ex-smokers for more than 10 years (21).

Hypertension, as the second risk factor and the most frequently mentioned one by men, was an option to be expected, in line with previous studies (2, 8). The data are consistent with the reports of the DGS concerning the Alentejo region (8). No less important as a risk factor is hypercholesterolemia, with a higher tendency in females, confirming local data (22). The results described above suggest that the risk in participants is high since the factors are prevalent at around 53-60 years-old (17). The similarity between the profiles of participants in relation to the data from other studies shows the likelihood of an increased risk in young local adults. As in other studies, regional risk variations should be the aim of urgent intervention programs (23). De facto, the risks are not isolated, they occur simultaneously, and can be aggravated or enhanced.

In controversy to risk behaviours, knowledge about CVA is high. The intensity of the television message seems to contribute to this knowledge. The accessibility to television allows the emission-reception of intense messages favouring their assimilation (20). Likewise, despite knowledge about stroke, the presence of risk behaviours shows evidence of underestimation. These results are linked to the review study, in which we can find mixed results of the effectiveness of educational interventions, with variations according to the different factors (24). The possibility of treatment of CVA is unknown by most of participants, fact indicated above (20), but the possibility of cure may incite the need to learn how to assist people with stroke in progress. In the present study, there is some lack of knowledge about what to do, since there are participants who could not place the patient to prevent airway obstruction, would not evaluate the breathing condition or call the emergency number 112.

These facts predispose to the incapacity of the patient, which could be avoided, if he/she were taken to stroke urgent medical care. The individuals who are more aware of the pathology, on the other hand, would perform the assistance and first aid, but with not recommendable attitudes (i.e., sitting the victim, asking victim to cough). These aspects, increased by calling the wrong telephone number, would result in ineffective help. Curiously, participants who have intermediate knowledge would act more adequately regarding posture, ventilation and telephone contact (25).

The results suggest that information is important and urgent. They reveal that the knowledge of safe acting should be taught. In addition, training adults is urgent, due to its impact on mortality and morbidity associated with stroke. In fact, education programs on signs and symptoms of stroke and pre-hospital care are effective. Prompt recognition is important as well as rushing to the hospital with adequate manipulation of the patient (2, 26).
Some limitations of the present study are due to the type of sample with no possibility of obtaining general results. The unique moment of data collection prevents the follow-up of participants. The use of standardized measures is also a weakness of the present study, recognised in literature review (24, 27). Suggestions. It would be useful to carry out larger studies on risk factors of cardio-vascular pathologies. The development of an educational program, with consecutive evaluations, before and after, that would allow the acquisition of knowledge and skills training. The establishment of partnerships between School and health units can materialise these ideas into useful projects for the community.

CONCLUSION

From these results, it can be deduced that there is a gap between health preservation behaviours and the level of knowledge about stroke. Two major needs in the population emerge, one in reference to the need to raise awareness about the balance between behaviour and risk and another about the ability to act safely and effectively when a person is having a stroke. Patients and health professionals can contribute with effective strategies to promote healthy behaviours. Commemorative days, health fairs are examples of events where behaviour to improve the management of quality of life can be discussed.

REFERENCES