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ORIGINAL ARTICLE

EPIDEMIOLOGY OF BRAIN VASCULAR ACCIDENTS SERVED THROUGH THE URGENCY MOBILE SERVICE

EPIDEMIOLOGIA DOS ACIDENTES VASCULARES ENCEFÁLICOS ATENDIDOS POR MEIO DO SERVIÇO DE ATENDIMENTO MÓVEL DE URGÊNCIA

EPIDEMIOLOGÍA DE LOS ACCIDENTES VASCULARES CEREBRALES ATENDIDOS A TRAVÉS DEL SERVICIO MÓVIL DE URGENCIA

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ABSTRACT

Objective: surveying the epidemiology of brain strokes attended through the emergency mobile service. ***Method:*** an epidemiological, descriptive, retrospective study comprising 117 medical records of victims of strokes. Data analysis was conducted through descriptive statistics using the Chi-square test of Person. The research had its project approved by the Research Ethics Committee, CAAE: 12188112.6.0000.5188. ***Results:*** the study revealed that 59% of strokes occurred in females; with prevalence in the elderly (77,1%); most calls occurred in the sanitary district III in the city of João Pessoa, PB (24,8%); the most common risk factor was high age (32,8%), among the signs initially presented highlights the hemiparesis (42,5%). **Conclusion:** the results of this study lead us to conclude that is essential the planning of actions for prevention and health promotion. ***Descriptors:*** Epidemiology; Brain Stroke; Prehospital Care.

RESUMO

Objetivo*:** levantar a epidemiologia dos acidentes vasculares encefálicos atendidos pelo serviço de atendimento móvel de urgência. ***Método*:** estudo epidemiológico, descritivo, retrospectivo, compondo 117 prontuários das vítimas de acidentes vasculares encefálicos. A análise dos dados foi efetivada pela estatística descritiva utilizando o *Teste de Qui-quadrado de Person*. A pesquisa teve aprovado o projeto pelo Comitê de Ética em Pesquisa, CAAE: 12188112.6.0000.5188. ***Resultados: o estudo revelou que 59% dos AVEs ocorreram no sexo feminino; com prevalência em idosos (77,1%); a maior parte dos chamados ocorreu no distrito sanitário III do município de João Pessoa-PB (24,8%); o fator de risco mais evidenciado foi a idade elevada (32,8%), dentre os sinais inicialmente apresentados destaca-se a hemiparesia (42,5%). ***Conclusão***: os resultados do presente estudo nos levam a concluir que é fundamental o planejamento de ações no âmbito da prevenção e promoção da saúde. ***Descritores***: Epidemiologia; Acidente Vascular Cerebral; Assistência Pré-Hospitalar.

RESUMEN

Objetivo: examinar la epidemiología de los accidentes cerebrovasculares atendidos a través del servicio móvil de urgencia. ***Método:*** un estudio epidemiológico, descriptivo, retrospectivo que comprende 117 historias clínicas de las víctimas de accidentes cerebrovasculares. Los datos se analizaron mediante estadística descriptiva con la prueba de Chi-cuadrado de Person. La investigación tuve el proyecto aprobado por el Comité de Ética en la Investigación, CAAE: 12188112.6.0000.5188. ***Resultados:*** el estudio reveló que el 59% de los derrames se produjeron en las mujeres; con prevalencia en los ancianos (77,1%); la mayoría de las llamadas se produjeron en el área sanitaria III en la ciudad de João Pessoa, PB (24,8%); el factor de riesgo más común fue la alta edad (32,8%), entre los signos inicialmente presentados se destaca la hemiparesia (42,5%). ***Conclusión:*** los resultados de este estudio nos llevan a concluir que la planificación de acciones en la prevención y promoción de la salud es esencial. ***Descriptores:*** Epidemiología; Accidente Cerebrovascular; Atención Prehospitalaria.

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INTRODUCTION

The brain is an organ of great complexity, essential to human life and its survivability; besides being responsible for the control of bodily functions.[1] Its movement is performed by the carotid system, which supplies most of the cerebral hemispheres and the vertebral basilar system, responsible for supplying the brain stem, cerebellum and posterior part of the cerebral hemispheres.[2] Thus, if for some reason the cerebral blood flow is interrupted, there is tissue necrosis and hypoxia cells, causing the brain vascular accident (CVA), popularly known as "stroke".

Considered a medical emergency, stroke is characterized as a neurological syndrome of sudden onset, resulting from the interruption of cerebral blood flow, either by a thrombus, which is considered ischemic stroke (ischemic stroke) or due to blood leakage, featuring hemorrhagic stroke (Aveh). Its location and extent are directly related to the clinical manifestations and prognosis of the patient.[1]

The CVA is still the leading cause of death in the adult Brazilian population, while 80% have ischemic origin and 20% hemorrhagic; it is also responsible for imposing disabilities in more than half of the affected people, who have their short life in the pursuit constant recovery of their daily activities.[3-5]

Among the risk factors that precipitate the development of stroke, there have been the non-modifiable, such as advanced age, male gender, black race and heredity. Systemic arterial hypertension (SAH), diabetes mellitus (DM), smoking, dyslipidemia, physical inactivity and atrial fibrillation are described as modifiable factors, which are directly linked to the lifestyle of each person.[6]

efore this context, there is a growing membership attention to policies for victims of cerebrovascular accident throughout the national territory, with a view that this is the first cause of death in the country.[7]

Ministry of Health data show a significant number of deaths due to stroke, with 99.159 deaths recorded in 2010, representing an average of 271 deaths per day. Similarly, a survey of hospital costs reveals that many patients days are used for the treatment of stroke victims, came to represent in 2011, a consumption of 172.298 admissions (average of 472 persons/day), in Brazilian public health.[7] Thus, investments ranging from the control of risk groups, through preventive measures in primary care to the expansion of the network of services for specialized treatment.

The Ministry of Health has drafted two ordinances in 2012, Ordinance nº664/2012, that approves the Clinical Protocol and Therapeutic Guidelines: Thrombolysis in Acute Ischemic Stroke; and Ordinance nº665/2012, which deals with the hospitals eligibility criteria as Urgent Care Centers Patient with stroke, which establishes the financial incentive and approves Care Line in CVA.[8,9]

It is understood that a public policies of assistance to victims of stroke, should be that provided within a broad scenario, permeated by the Care Line in CVA. Thus, it should cover: Basic Health Networks, Mobile Emergency Service (SAMU), Hospitals Emergency, spare beds, outpatient rehabilitation, specialized clinics and home care programs. It is based on these support scenarios, which are assembled public policy strategies, taking into account the behavior, characteristics, spatial distribution and stroke time.

This study is relevant for considering the SAMU as a pre-hospital component most used by the population in urgencies, reflecting the health system as a whole, contributing to the planning of government actions, as well as the establishment of measures to prevent and control each more effective and targeted to the reality experienced in this service, both in the city of João Pessoa, PB as on a broader level.

In support for the construction of health care strategies in CVA in the city of João Pessoa, PB, the following research problems arose: What is the prevalence of stroke in relation to gender and age? How is the geographical distribution of suspected victims of stroke? What are the risk factors presented by the patients? What signs are evident in the initial care to the patient suspected of stroke? Thus, we set as goals:

- Surveying epidemiology of strokes attended by emergency mobile call service.
- Showing the prevalence of suspected cases of strokes regarding gender and age.
- Identifying the geographical distribution of suspected cases of strokes attended by the urgency mobile care service in the city of João Pessoa-PB.
- Identifying the risk factors for victims of stroke treated in the urgency mobile call service.
- Showing the signs/symptoms presented by the initial victims with suspected strokes.

METHOD

This study was based on an epidemiological research of descriptive and retrospective nature, developed through the regional SAMU database of João Pessoa, Paraiba. The sample

was characterized as probabilistic, simple casual, with a confidence level of 95% and maximum error desired 5%; being composed of 117 medical records, with a possible diagnosis of stroke, containing personal, clinical and assistance provided by the health team data, occurred in the period from January to June 2013.

Data collection was performed in September 2013, from the Medical Records and Statistics Service (SAME) of the regional Joao Pessoa SAMU, using a structured instrument that contained questions that characterized the suspected victims of stroke: gender, age, the service location, risk factors for stroke and signs and symptoms exhibited by victims in the initial care. João Pessoa City is divided geographically into five health districts to better implementation of health work, so the service station will be classified in this distribution.

Data analyses were performed with the aid of the Statistical Package for Social Sciences (SPSS). For the study, the Chi-square test of Person was performed, by suit to achieve the proposed objectives. The significance level for statistical tests was of 5% ($p<0,05$).

It should be noted that during the whole process of research, the ethical aspects that regulate research involving human beings willing Resolution No. 466/2012 of the CNS/MS/BRAZIL[10], especially with regard to secrecy and confidentiality of information, were observed. The study was reviewed by the Committee of Ethics in Research of the Health Sciences Center of the Federal University of Paraiba, being filed and approved under No. 020/13; Presentation and Certificate for Ethics Assessment (CAAE): 12188112.6.0000.5188.

RESULTS

There were analyzed a total of 117 records of care provided to patients with probable diagnosis of stroke, which highlighted the predominance of women in these occurrences, represented by the quantity of 69 women (59%) and 48 men (41%). With regard to age, there was a higher incidence in the seventh decade of life (30,8%), which is shown in Table 1.

Table 1. Distribution of the relationship between gender and age in patients with suspected CVA serviced by the Mobile Service of Urgency of João Pessoa. João Pessoa – PB, 2013. (n=117).

Age (in years)	Gender				Total		P
	Female		Male				
	N	%	N	%	N	%	
> 80	22	71	09	29	31	26,5	0,451
71 - 80	23	63,9	13	36,1	36	30,8	
61 - 70	12	52,2	11	47,8	23	19,7	
51 - 60	07	46,7	08	53,3	15	12,8	
41 - 50	04	50	04	50	08	6,8	
30 - 40	01	50	01	50	02	1,7	
18 - 29	00	00	01	100	01	0,9	
<18	00	00	01	100	01	0,9	
Total	69	59	48	41	117	100	

In terms of geographical distribution, it shows the predominance of the districts I, III and IV, as shown in table 2.

Table 2. Geographical distribution of suspected cases of CVA serviced by SAMU João Pessoa . João Pessoa – PB, 2013. (n=117).

Geographical Distribution or Service Areas	N	%
District III	29	24,8%
District IV	21	17,9%
District I	19	16,2%
Next cities	17	14,2%
District II	14	12%
District V	14	12%
BR	02	1,7%
No identification	01	0,9%
Total	117	100%

It is also established a relationship between gender and risk factors, in which statistical significance was observed only for SH ($p = 0,003$), as shown in Table 3.

Table 3. Distribution of the relationship between gender and risk factors in patients with suspected CVA serviced by Mobile Service of Urgency of João Pessoa. João Pessoa – PB, 2013. (n=117).

Risk factors	Gender				Total		P
	Female		Male				
	N	%	N	%	N	%	
>64 years old	47	60	31	39,7	78	26,5	0,690
SH	42	72,4	16	27,6	58	30,8	0,003
DM	19	65,5	10	34,5	29	19,7	0,481
Cardiopathy	07	58,3	02	16,6	09	12,8	0,504
CVA historic	08	61,5	05	38,5	13	6,8	0,842

*It should be noted that each customer may submit more than one risk factor.

Regarding signs and symptoms in the initial care, the most frequent were: hemiparesis (42,5%), speech disorders (19,6%) and deviation of the labial commissure (18,1%), presented in Table 5

Table 5. Distribution of signs of CVA presented initially by victims serviced by SAMU. João Pessoa – PB, 2013. (n=117).

Signs of CVA	N	%
Hemiparesis	54	42,5%
Speech disorders	25	19,6%
Deviation of the labial commissure	23	18,1%
Changes on walking	08	6,2%
Headache	08	6,2%
Other	06	4,7%
Vertigo	03	2,3%
Total	127	100%

*It should be noted that each customer can show more than one risk factor.

DISCUSSION

Corroborating studies in northeastern Brazil, the analysis of results led to the predominance of women in the occurrence of stroke.[11,12] However, these data are contrary to findings in the literature regarding the rest of the country and the world, which shows stroke as a most common condition in men.[13,14,15]

Regarding age, it was confirmed the prevalence in the elderly of 61 or older (77,1%), showing the exponential increase in susceptibility of individuals over the years; so that authors state that arrive to double the chances of an episode of stroke after fifty-five years old.[16,17]

Still concerning the age group, Table 1 presents a higher incidence percentage in the seventh decade of life, 30,8% of which 63,4% is for females and 36.1% of males. These results reflect previous studies which explain that at this time of life, metabolic and cardiovascular changes add up to age factor, significantly increasing the chance of a CVA.[18] However, the literature indicates a lower chance of survival after 75, leading to even lower levels in the eighth decade of life.[19]

In terms of geographical distribution, as shown in Table 2, it is argued that the districts III, IV and I, in this order, stood out as the major incidents of stroke cases in the city. These are composed of old neighborhoods that have a large concentration of people larger than sixty years ago, leading to a greater likelihood of stroke, due to the age risk factor.[14,20]

Concerning risk factors revealed in this study, the most significant were represented by: age over than 64 (32,8%), arterial hypertension (24,4%), males (18,9%) and diabetes mellitus (12,2%). Study of over 1000 patients with possible stroke event in Italy, said in addition to these, history of previous myocardial infarction, hypercholesterolemia, previous atrial fibrillation and smoking as important risk factors.[21]

Another important aspect is that Hypertension is considered a modifiable factor, accounting for an increase of three to four times the risk of developing stroke. It is therefore also classified Diabetes Mellitus, which increases the susceptibility of atherosclerosis formation in brain, coronary and peripheral arteries making it easier to obstruction and/or thrombus formation.[22]

This is because it is considered a non-transmissible chronic disease (NCD); SAH makes the heart exert more work than usual, evolving to heart failure, which also affects the renal system and the cerebral blood supply.[1] However, surveys say that 90% of stroke cases occur in view of the not control modifiable risk factors, hypertension being present in 80% of them.[13] Thus, we can state that the CVA is a preventable event, if we direct the look at the control of hypertension in the context of primary health care. In this context, we can see that there is a need for improvement of prevention programs and

health promotion in primary care, with the aim of minimizing the possible cardiovascular complications caused by the aforementioned underlying diseases, with emphasis on CVA.

It should be noted that, although this study identify age as a risk factor that cannot be modified, there was a small portion of records of other risk factors associated with this event, such as smoking, black, dyslipidemia, previous stroke, heart disease, among others; showing the possible underreporting of such data by professionals who provided care.[20,23]

In table 3, to establish a relationship between gender and risk factors in patients with stroke history, stood out with statistical significance only hypertension, displayed in 58 individuals, 30,8%; among these 72,4% were women and 27,6% men carriers of the disease. This fact is explained by the increased prevalence of hypertension in women with increasing age, the main factor climaterium, which leads the female to a linear increase in cases of hypertension due to the decrease of estrogen and progesterone levels in blood flow, leading to the onset of cardiovascular diseases, since it has cardioprotective effect of estrogen.[24] Studies have shown that the prevalence of hypertension in males occurs until 50 - 60 years old, then there may occur from the inversion of values.[25]

The literature states that the stroke can be ischemic (85%) where there is occlusion of blood flow or bleeding (15%), in which there is a blood extravasation into the brain tissue.[1]

In this study, most patients' records had no identification about the type of stroke (suspected) showed by the user. Possible explanations that can be raised are underreporting, the lack of health professionals about the main symptoms that differ from the hemorrhagic stroke ischemic stroke, and the need to conduct additional tests to determine the type of stroke.

In terms of underreporting, it is important to highlight the need for awareness of health professionals to become aware of the record user information, contained in the medical records, since this is one way to gather information for the purpose of publications and offer subsidies to programs and government policies with a view to a better quality of life for the population.[26]

Entering in the discussion of the initial clinical manifestations presented by individuals affected by stroke, the data shown in Table 5 are confirmed in research, which shows that they can characterize the affected area of the brain.[19] Thus, in case of stroke in the carotid territory may occur motor deficit, sensory deficit, difficulty in articulating words, visual changes, facial palsy, among others.[27]

The same authors explain that generally when there is ischemic stroke at some of the cerebral hemispheres occurs decrease in consciousness level; this feature that, in the present study, it was shown as "other" signs.

On the other hand, AVEh is characterized by showing signs, such as nausea and vomiting, due to a focal neurological deficit of sudden onset, seizures, high blood pressure, severe headache of sudden onset, dizziness and even coma.[28]

CONCLUSION

It was found with this study that, of 117 medical records of likely victims of stroke analyzed, there was statistically significant for hypertension as the main triggering factor of this event, with a female predominance, high number of cases after 60 years old, and the main sign/symptom: hemiparesis.

From these data, we highlight the importance of planning actions in the prevention and health promotion, since hypertension is a condition of possible control in primary care network.

It was concluded that due to the high rate of underreporting founds in the studied records, there is an urgent need for health professionals awareness of the importance of correct completion; order to pass on to other services all the information collected, the procedures performed, as well as support future researches developed from the databases and provide concrete information so that the government can implement new strategies to improve the population's quality of life from the basic health care network.

REFERENCES

1. Smeltzer SC, Bare BG. Brunner & Suddarth Tratado de Enfermagem médico-cirúrgica. 12 ed. Rio de Janeiro: Guanabara Koogan; 2012.

2. Itaquy RB, Favero SR, Ribeiro MC, Barea LM, Almeida ST, Mancopes R. Disfagia e acidente vascular cerebral: relação entre o grau de severidade e o nível de comprometimento neurológico. J Soc Bras Fonaldiol on line [Internet]. 2011 [cited 2014 Aug 10];23(4):385-9. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S2179-64912011000400016

3. Brasil. Ministério da Saúde. Implantando a linha de cuidado do Acidente Vascular Cerebral na rede de atenção às urgências. Brasília; 2011.

4. Maniva SJCF, Freitas CHA. Uso de alteplase no tratamento do acidente vascular encefálico isquêmico agudo: o que sabem os

enfermeiros? Rev Bras Enferm [Internet]. 2012 [cited 2013 Jan 16]; 65(3):474-81. Available from: http://www.scielo.br/scielo.php?pid=S003471672012000300012&script=sci_arttext

5. Carvalho JJF, Alves MB, Viana GAA, Machado CB, Santos BFC, Kanamura AH, et al. Stroke Epidemiology, Patterns of Management, and Outcomes in Fortaleza, Brazil: A Hospital-Based Multicenter Prospective Study Stroke [Internet]. 2011 [cited 2014 Aug 25];42:3341-46. Available from: http://stroke.ahajournals.org/content/42/12/3341.full

6. Castro JAB, Epstein MG, Sabino GB, Nogueira GLO, Blankenburg C, Staszko F, et al. Estudo dos principais fatores de risco para acidente vascular encefálico. Rev Bras Clin Med [Internet]. 2009 [cited 2013 July 16];7:171-73. Available from: http://files.bvs.br/upload/S/1679-1010/2009/v7n3/a171-173.pdf

7. Brasil. Ministério da Saúde. Ministério amplia assistência a pacientes com AVC. Brasília; 2012.

8. Brasus. Ministério da Saúde. Portaria GM Nº 664, de 12 de abril de 2012. Aprova o Protocolo Clínico e Diretrizes Terapêuticas - Trombólise no Acidente Vascular Cerebral Isquêmico Agudo. Brasília; 2012.

9. Brasil. Ministério da Saúde. Portaria Nº. 665, de 12 de abril de 2012. Dispõe sobre os critérios de habilitação dos estabelecimentos hospitalares como Centro de Atendimento de Urgência aos Pacientes com Acidente Vascular Cerebral (AVC), no âmbito do Sistema Único de Saúde (SUS),institui o respectivo incentivo financeiro e aprova a Linha de Cuidados em AVC. Brasília; 2012.

10. BRASIL. Ministério da Saúde. Conselho Nacional de Saúde. Comissão de Ética e Pesquisa. Resolução nº 466/2012 sobre pesquisa envolvendo seres humanos. Brasília; 2012.

11. Lima CPNC, Costa MML, Soares MJGO. Perfil epidemiológico dos pacientes acometidos por acidentes vasculares cerebrais. J Nurs UFPE online [Internet]. 2009 [cited 2013 Oct 16];3(4):857-63. Available from: http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/94

12. Cavalcante TF, Moreira RP, Araújo TL, Lopes MVO. Fatores demográficos e indicadores de risco de acidente vascular encefálico: comparação entre moradores do município de Fortaleza e o perfil nacional. Rev Latino Am-Enfermagem [Internet]. 2010 [cited 2013 Oct 16];18(4):[6 screens]. Available from: http://www.scielo.br/pdf/rlae/v18n4/pt_07.pdf

13. Piper VA, Castro K, Elkfury JL, Santos ZEA, Almeida AG, Ouriques SM, et al. Dieta DASH na redução dos níveis de pressão arterial e prevenção do acidente vascular cerebral. Scientia Medica [Internet]. 2012 [cited 2013 Oct 16]; 22(2):113-8. Available from: http://revistaseletronicas.pucrs.br/ojs/index.php/scientiamedica/article/viewFile/10525/8170

14. Suwanwela NC. Stroke Epidemiology in Thailand. Journal of Stroke [Internet]. 2014 [cited 2014 Sept 1];16(1):1-7. Available from: http://synapse.koreamed.org/DOIx.php?id=10.5853/jos.2014.16.1.1

15. Park WB, Cho JS, Shin SD, Kong SY, Kin JJ, Lim YS et al. Comparison of Epidemiology, Emergency Care, and Outcomes of Acute Ischemic Stroke between Young Adults and Elderly in Korean Population: A Multicenter Observational Study. J Korean Med Sci [Internet]. 2014 [cited 2014 Aug 29];29(7):985-991. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4101788/

16. Pereira ABCNG, Alvarenga H, Pereira Junior RS, Barbosa MTS. Prevalência de acidente vascular cerebral em Idosos no Município de Vassouras, Rio de Janeiro, Brasil, atraves se Dados Rastreamento de fazer Programa Saúde da Família. Cad Saúde Pública [Internet]. 2009 [cited 2014 June 16];25(9):1929-36. Available from: http://www.scielo.br/scielo.php?pid=S0102311X2009000900007&script=sci_arttext

17. Goldstein LB, Bushnell CD, Adams RJ, Appel LJ, Braun LT, Chaturvedi S et al. Guidelines for the primary prevention of stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. Stroke [Internet]. 2011 [cited 2014 Aug 14];42:517–84. Available from: http://stroke.ahajournals.org/content/42/2/517.full.pdf+html

18. Farghaly WMA, El-Tallawy HN, Badry R. Epidemiology of nonfatal stroke and transient ischemic attack in Al-Kharga District, New Valley, Egypt. Neuropsychiatr Dis Treat [Internet]. 2013 [cited 2014 Aug 14];7:1785-90. Available from: http://www.dovepress.com/epidemiology-of-nonfatal-stroke-and-transientischemic-attack-in-al-kh-peer-reviewed-article-NDT

19. Leita H, Nunes APN, Corrêa CL. Perfil epidemiológico de pacientes acometidos por acidente vascular encefálico cadastrados na Estratégia de Saúde da Família em

Diamantina, MG. Fisioter Pesqui [Internet]. 2009 [cited 2014 July 16];16(1):34-39. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&nrm=iso&lng=pt&tlng=pt&pid=S1809-29502009000100007

20. Cruz KCT, Diogo MJD. Avaliação da capacidade funcional de idosos com acidente vascular encefálico. Acta Paul Enferm [Internet]. 2009 [cited 2014 July 16];22(5):666-72. Available from: http://www.scielo.br/pdf/ape/v22n5/11.pdf

21. Corso G, Bottacchi E, Giardini G, Di Giovanni M, Meloni T, Pesenti Campagnoni M, et al. Epidemiology of stroke in Northern Italy: the Cerebrovascular Aosta Registry, 2004–2008, Neurological Sciences [Internet]. 2012 [cited 2014 Sept 10];34(7):1071-81. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23007380

22. Brito ES, Rogano Pantarotto RF, Costa LRLG. A hipertensão arterial sistêmica como fator de risco ao acidente vascular encefálico. J Health Sci Inst [Internet]. 2011 [cited 2014 July 18];29(4):265-8. Available from: http://www.unip.br/comunicacao/publicacoes/ics/edicoes/2011/04_outdez/V29_n4_2011_p265-268.pdf

23. Castro JAB, Epstein MG, Sabino GB, Nogueira GLO, Blankenburg C, Staszko F, et al. Estudo dos principais fatores de risco para acidente vascular encefálico. Rev Bras Clin Med [Internet]. 2009 [cited 2014 Aug 19];7:171-3. Available from: http://files.bvs.br/upload/S/1679-1010/2009/v7n3/a171-173.pdf

24. Soares DS, Silva MP, Dellagrana RA, Gasparotto GS, Bonfim AL, Costa A, et al. Prevalência de hipertensão arterial com o avanço da idade em mulheres.Revista Digital - Buenos Aires [Internet]. 2009 [cited 2014 July 27];14(136):381-5. Available from: http://www.efdeportes.com/efd136/prevalencia-de-hipertensao-arterial-em-mulheres.htm

25. Baladi R. Hipertensão Arterial Sistêmica – HAS. Caso complexo 11 – Sérgio. Especialização em Saúde da Família. UNASUS – Universidade Federal de São Paulo [Internet] 2011 [cited 2014 July 28]. Available from: http://www.unasus.unifesp.br/biblioteca_virtual/esf/1/casos_complexos/Sergio/Complexo_11_Sergio_Hipertensao.pdf

26. Garritano CR, Luz PM, Pires MLE, Barbosa MTS, Batista KM. Análise da Tendência da Mortalidade por Acidente Vascular Cerebral no Brasil no Século XXI. Arq Bras Cardiol [Internet]. 2012 [cited 2014 Aug 12]. Available from: http://www.scielo.br/pdf/abc/2012nahead/aop03812.pdf

27. Martins HS, Damasceno MST,Awada SB. Pronto-socorro: condutas do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo. Barueri, SP: Manole; 2012.

28. Lavor IG, Agra G, Nepomuceno CM. Perfil Dos Casos De Acidente Vascular Cerebral Registrados em uma Instituição Pública De Saúde Em Campina Grande – Pb. Revista Tema [Internet]. 2011 [cited 2014 Sept 2];12(17):1-12. Available from: http://revistatema.facisa.edu.br/index.php/revistatema/article/view/88/105

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