Evaluation of Rituximab in Immunothrombocytopenia Splenectomized and Non-Splenectomized Patient

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ABSTRACT
Stroke carries a high risk of death. Survivors can experience loss of vision and/or speech, paralysis and confusion. The risk of death depends on the type of stroke and its incidence increases with advancing age. Post-stroke aphasia and language impairment are significant health problems among stroke patients and may result in considerable activity limitation. Different types of aphasia might develop according to the location of the stroke.
To identify the types of aphasia in patients with stroke and to assess the relationship between the age and types of aphasia in each type of stroke in those patients.
This was a hospital-based cross-sectional study conducted at Bagdad Teaching Hospital, Medical City and Al Imamin Al Kazmain Medical City during the period from October 2014 to the end of September 2015. One hundred patients were enrolled and assessed at neurology and general medical wards. Clinical assessment of the aphasic patient was performed through clinical and language examination was performed. Statistical analysis was performed using the statistical package for Social Sciences version 22 and the appropriate statistical tests were used accordingly.
The mean age of the studied group was 62.1 ± 13.2 (range: 37-87) years and the majority of the patients aged more than 50 years. Females represented 55% of the patients. Ischemic and hemorrhagic strokes were reported in 76% and 24% of patients, respectively. Global aphasia was found in 32%, Broca´s(17%), Thalamic 17 (17%), Putaminal(11%), and Werneck's (11%) of the patients, other types were less frequent. Hypertension was the most frequent risk factor reported among the patients Heart failure was the commonest reported cardiac factor. Aphasia was more frequent among patients older than 50 years. No statistically significant association had been found between the age and the types of aphasia (P>0.05). Global, Broca´sWernick´saphasia were significantly associated with ischemic stroke, while Thalamic, Putaminal conduction and anomia were associated with hemorrhagic stroke, (P<0.05). Hyperlipidemia and diabetes mellitus were significantly associated with Ischemic stroke rather than hemorrhagic (P=0.010). Cardiac risk factors were significantly associated with Ischemic stroke, (P = 0.038).7
Aphasia was more frequent with older age, and no significant association had been found between the type of aphasia and the age, generally, no significant association had been found between the types of aphasia and the risk factors, but some types were associated significantly with hypertension, smoking and diabetes mellitus. Further studies are suggested for further assessment.

1. Introduction

Definitions

Immune thrombocytopenic purpura (ITP):

also known as idiopathic thrombocytopenic purpura, is an immune-mediated acquired disease of adults and children characterized by a transient or persistent decrease of the platelet count and, depending upon the degree of thrombocytopenia, increased risk of bleeding.[1]

Immune thrombocytopenia (ITP) is an autoimmun1characterized by low platelet count primarily from platelet autoantibodies that mediate platelet destruction in the reticuloendothelial system.[2-3]mmune thrombocytopenic purpura (ITP) is the presence of thrombocytopenia alone with normal bone marrow and no other cause of thrombocytopenia. It is a fall in the number of platelets without toxic exposure or any diseases known to cause a low platelet count. ITP is primarily a disease of increased peripheral platelet destruction, with most patients having antibodies to specific platelet membrane glycoproteins. [4-5]

is a clinical syndrome in which a decreased number of circulating platelets (thrombocytopenia) manifests as bleeding tendency, easy bruising (purpura), or extravasation of blood from capillaries into the skin and mucous membrane (petechiae) Intracranial haemorrhage may occur when the

platelet count drops below 10*109/L (<10*103/μL) (.6) ITP is defined as isolated **thrombocytopenia** (platelet

count <100 x 109/L) with no associated causes or disorder. A normal platelet count in healthy individuals is between 150–450 x 109/L. Traditionally ITP has been classified as acute, sudden onset, lasting less than 6 months; chronic, persisting more than 6 months; or refractory, persistently low platelet counts despite appropriate treatment or splenectomy. In 2009, a new nomenclature for the phases of ITP based on

time from diagnosis was proposed.

Aim of study :

To identify the types of aphasia in patients with stroke.

To assess the relationship between the age and types of aphasia in each type of stroke in those patients.

2. Methodology

This chapter discusses the method employed in the conduct of this study. It covers the methodological issues about the study location, the study design and statistical analysis employed to test the study hypotheses.

Study design, time.

This was a hospital-based cross-sectional study conducted at Bagdad Teaching Hospital, Medical City and Al Imamin Al Kazmain Medical City. during the period from October 2014 to the end of September 2015 to determine the relation between the age and different types of aphasia in stroke patients.

Study Sample

One hundred patients with different types of strokes who were admitted to Baghdad Teaching Hospital between October 2014 and September 2015 were seen at neurology wards and general medical wards.

Inclusion criteria

Patients with proven diagnoses of stroke by clinical and radiological assessment aged 30 years and beyond of both genders and both left and right-handed were included.

Exclusion criterion:

Patients with one or more of the following criteria were excluded from the study:

History of dementia, Parkinson’s disease, psychological illnesses, learning disability.

Could not communicate with the normal intensity of voice.

Disturbed consciousness.

Data collection

The data were collected by using a pre-structured questionnaire filled by the researcher by taking a full history and doing the clinical examination. Data regarding the clinical and demographic characteristics of the patients were reported including Age, gender, handedness, stroke types, stroke side, stroke site, aphasia types, and risk factors.

Ethical approval:

The study protocol was approved by the Scientific Council of Neuromedicine of the Iraqi Board of Medical Specialization.

Verbal consent was obtained from the patient before participation in the study.

The data and information of the patients were kept confidential and were not disclosed to unauthorized personnel.

Statistical analysis:

Data from the 100 stroke cases were entered and analyzed by using the statistical package for social sciences (SPSS) software version 22, IBM, Chicago, US, for Windows. Descriptive statistics were presented as mean, standard deviation (SD), frequencies (No.) and proportion (%). Chi-square test was used to assess the association between different variables. Level of significance, Value was set at 0.05. Finally, results were presented in tables and or figures with an explanatory paragraph.

3. Results and discussion

Descriptive characteristics of the stroke cases

A total of 100 patients with different types of stroke were enrolled in this study. The mean age of the studied group was 62.1 ± 13.2 (range: 37-87) years, moreover, the majority of the studied group aged more than 50 years.

Females were relatively the dominant than males; 55 (55%) vs. 45 (45%) respectively. Regarding the handedness, (93%) of the cases were right-handed. All these descriptive characteristics are presented in Table 3.1.

Table 3.1. Baseline characteristics of studied group (N=100)

Variable		No.	%
Age (year)	≤ 50	23	23.0
	51 – 60	27	27.0
	61 – 70	26	26.0
	> 70	24	24.0
	Mean ± SD	62.1 ± 13.2	-
	Range	37 - 87	-
Gender	Female	55	55.0
	Male	45	45.0
Handedness	Right	93	93.0
	Left	7	7.0

Types and sites of strokes:

As it is shown in Table 3.2 ischemic stroke was the dominant type of stroke among cases it was reported in 76 cases (76%) compared to only 24 (24%) of hemorrhagic type, (**Fig. 3.1**).

From other points of view cortical stroke was found in 73 cases (73%) and deep stroke in the remaining 27 cases (27%), (**Fig. 3.2**).

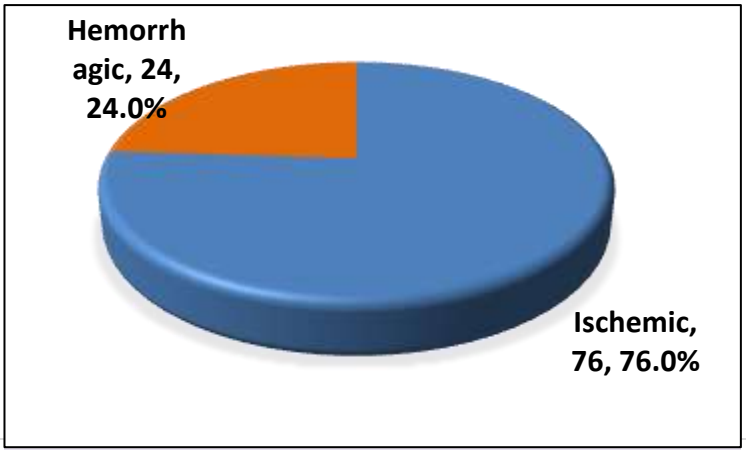

Figure 3.1.Distribution of types of stroke (N=100)

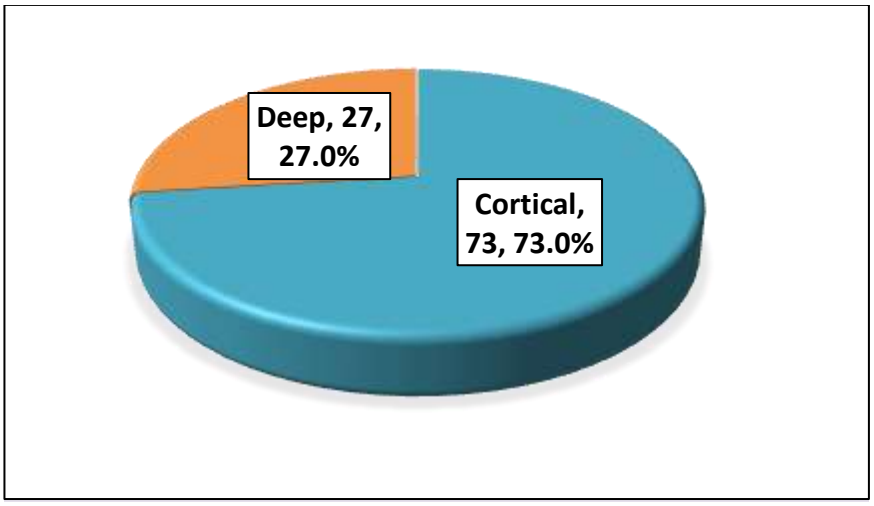

Figure 3.2.Distribution of sites of stroke (N=100)

Types of aphasia among stroke patients:

Figure 3.3 shows the types of aphasia of the 100 stroke patients. As it is shown in this table global aphasia was found in 32 stroke cases (32%), Broca´sin 17 (17%), Thalamic 17 (17%), Putaminal11 (11%), Werneck's 11 (11%), Motor transcortical 6 (6%), Conductive and anomia 4 (4%) and the Mixed transcortical in only two cases (2%).

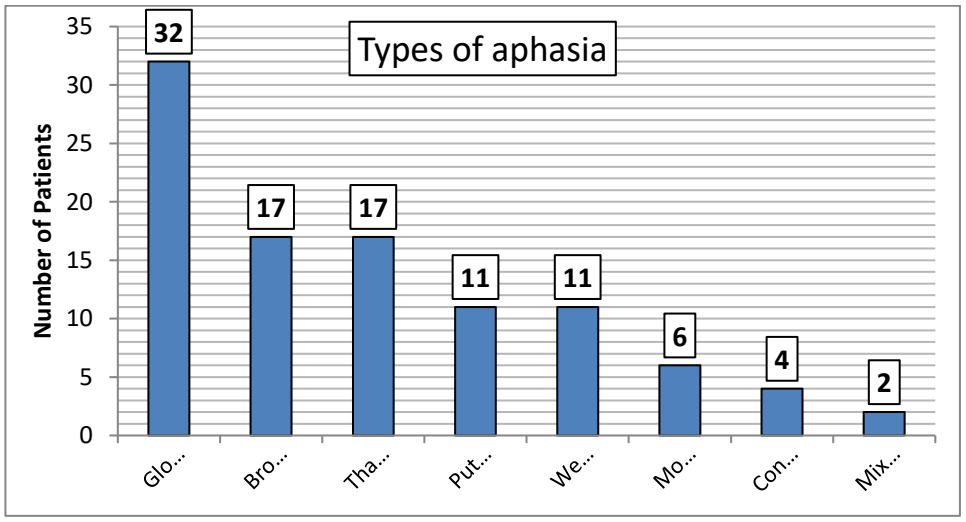

Figure 3.3. Types of aphasia among 100 stroke patients

Risk factors

Out of the 100 stroke patients, 29 (29%) had Diabetes mellitus, 76 (76%) had hypertension, 23 (23%) had hyperlipidemia and 34 patients (34%) were smokers. Regarding the cardiac factor, IHD was reported in 23 patients (23%), HF in 11 (11%), AF in 4 (4%) and valvular heart disease (VHD) in only 2 cases (2%), (Figure 3.4).

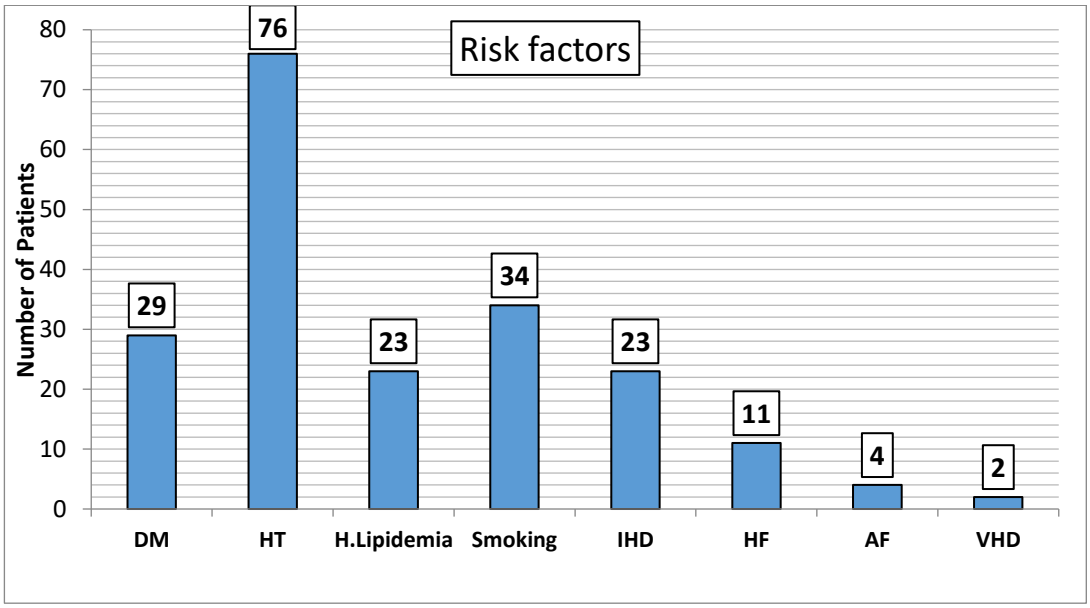

Figure 3.4. Distribution of risk factors of the 100 stroke patients.

Relationship between aphasia and age:

As shown in Figure 3.5, using 50 years as a cut point it had been significantly found that 77% of Aphasic patients aged > 50 years while only 23% aged ≤ 50 years (P<0.05).

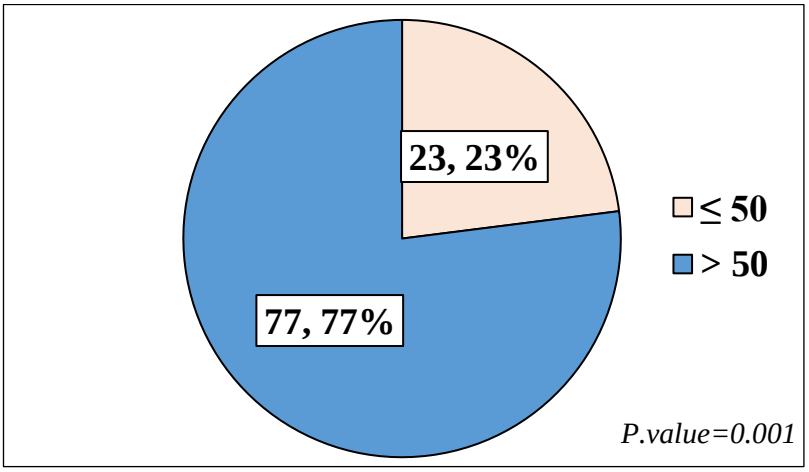

Figure 3.5. Distribution of Aphasic patients according to age using 50 years as the cut point

As shown in Table 3.2, it had been found that the Global, Putaminal, Wernicke and Conductive and anomia subgroups of aphasia were more frequent among patients older than 50 years, while Broca´s, Thalamic, Motor transcortical and Mixed transcortical subgroups of aphasia were more frequent in patients younger than 50 years, however, the differences didn't reach the statistical significance, (P>0.05), (Table 3.3)

Table 3.2. Relationship between type of aphasia and age

Aphasia	Ages				P.value
	≤ 50 (N= 23)		> 50 (N=77)		
	No.	%	No.	%	
Global	4	17.4	28	36.4	0.15
Putaminal	0	0.0	11	14.3	0.12
Wernick´s	0	0.0	11	14.3	0.12

Conductive and anomia	0	0.0	4	5.2	0.63
Broca´s	7	30.4	10	13.0	0.10
Thalamic	8	34.8	9	11.7	0.021
Motor transcortical	3	8.7	4	5.2	0.90
Mixed transcortical	1	8.7	0	0.0	0.53
Total	23	100.0	77	100.0	

Further analysis for the association between age and types of Aphasia was made according to the types of a stroke in each age group, the comparison revealed that in the Ischemic stroke group Broca´s, Thalamic, Motor transcortical, and Mixed transcortical subgroups of aphasia were more frequent in young age group (≤ 50 years) than elderly (> 50 years) while Global, Putaminal, Werneck's and Conductive and anomia were more frequent in elderly than young age group, however, the differences didn't reach the statistical significance, (P>0.05), except in thalamic subgroup, (P=0.001).

In the Hemorrhagic stroke group, similar trends had been found but also the differences didn't reach the statistical significance, (P>0.05) (Table 3.3).

Table 3.3. Relationship between type of aphasia and age according to the types of stroke

Aphasia type	Ischemicstroke (n= 76)		*P.value*	Hemorrhagic stroke (n=24)		*P.value*
	< 50 (n=17)	**> 50 (n=59)**		**< 50 (n=6)**	**> 50 (n=18)**	
Global	4	27	0.17	0	1	0.55
Broca´s	5	10	0.42	2	0	0.88
Thalamic	**4**	**0**	**0.001**	4	9	0.81
Putaminal	0	8	0.24	0	3	0.70
Werneck's	0	11	0.12	0	0	-
Motor transcortical	2	1	0.24	0	3	0.70
Conductive and anomia	0	2	0.92	0	2	1.0
Mixed transcortical	2	0	0.07	0	0	-

Relationship between type of stroke and type of Aphasia:

Table 3.4 demonstrates the relationship between the types of stroke and aphasia. It had been found that Global, Broca´s and Wernicke's aphasia subgroups of aphasia were significantly more frequent among patients with ischemic stroke than those with hemorrhagic, (P.value < 0.05), while thalamic aphasia, Putaminal and Conductive and anomia were significantly more frequent among cases with hemorrhagic stroke, (P< 0.05). On the other hand, Motortranscortical and Mixedtranscortical were not significantly different concerning the type of stroke, (P> 0.05).

Table 3.4.Relationship between type of stroke and type of Aphasia.

Type of Aphasia	Ischemicstroke (n= 76)		Hemorrhagic stroke (n=24)		P.value
	No.	%	No.	%	
Global	31	40.8	1	4.2	**0.032**
Broca´s	15	19.7	2	8.3	**0.007**
Wernick´s	11	14.5	0	0.0	**0.001**
Thalamic	4	5.3	13	54.2	**0.001**
Putaminal	8	10.5	3	12.5	**0.045**
Conductive and anomia	2	2.6	2	8.3	**0.04**
Motor transcortical	3	3.9	3	12.5	0.28
Mixed transcortical	2	2.6	0	0.0	0.12
Total	76	100.0	24	100.0	-

Relationship between type of stroke and risk factors

Regarding the relationship between type of stroke and risk factors, it had been found that diabetic patients were more likely to have Ischemic stroke rather than hemorrhagic, (35.7%) vs. (7.7%), respectively, (P=0.010). Cardiac risk factors are significantly associated with Ischemic stroke, (P = 0.038). Hyperlipidemia was more frequent among patients with hemorrhagic stroke than ischemic (P=0.013), while smoking was significantly associated with ischemic rather than hemorrhagic stroke, (P=0.040). Hypertension was not significantly different concerning the type of stroke, (P=0.13), (Table 3.5).

Table 3.5. Relationship between type of stroke and risk factors

Risk factors		Stroke type				***P***
		Ischemic		Hemorrhagic		
		No.	%	No.	%	
Diabetic	Yes	**15**	**35.7**	1	7.7	**0.010**
	No	27	64.3	12	92.3	
Hypertension	Yes	31	73.8	12	92.3	0.13
	No	11	26.2	1	7.7	
Cardiac	IHD	13	31.0	1	7.7	**0.038**
	HF	6	14.3	0	0.0	
	AF	2	4.8	0	0.0	
	VHD	1	2.4	0	0.0	
	None	20	47.6	12	92.3	
Hyperlipidemia	Yes	8	19.0	5	38.5	**0.013**
	No	34	81.0	8	61.5	
Smoking	Yes	16	38.1	3	23.1	**0.040**
	No	26	61.9	10	76.9	

Relationship between types of Aphasia and risk factors:

No significant association had been found between the types of aphasia and the risk factors, except the following: Broca´s and Motor transcortical aphasia were significantly associated with hypertension (P < 0.05), (Table 3.7). Global aphasia was significantly associated with the presence of hyperlipidemia, (P=0.034), (Table 3.8). Wernick's Aphasia was significantly associated with Smoking, (P=0.011), (Table 3.9). Regarding the association between types of aphasia and cardiac factors it had been significantly found that patients with heart failure were more likely to have global aphasia, (P=0.009), Broca´s aphasia was significantly associated with IHD, (P=0.001). Motor transcortical was significantly associated with VHD, where both patients with VHD had Motor transcortical, (P=0.001), (Table 3.10)

between type of Aphasia and diabetes

Aphasia	Diabetic				***P***
	Yes (n=29)		No (n=71)		
	No.	%	No.	%	
Global	11	37.9	21	29.6	0.56
Broca´s	8	27.6	9	12.7	0.13
Thalamic	2	6.9	15	21.1	0.15
Putaminal	4	13.8	7	9.9	0.82
Wernicke's	4	13.8	7	9.9	0.82

Motor transcortical	0	0.0	6	8.5	0.24
Conductive and anomia	0	0.0	4	5.6	0.45
Mixed transcortical	0	0.0	2	2.8	0.90

Table 3.7. Relationship between type of Aphasia and Hypertension

Aphasia	Hypertension				*P*
	Yes (n=76)		No (n=24)		
	No.	%	No.	%	
Global	26	34.2	6	25.0	0.55
Broca´s	9	11.8	8	33.3	0.033
Thalamic	13	17.1	4	16.7	0.79
Putaminal	11	14.5	0	0.0	0.11
Wernick´s	11	14.5	0	0.0	0.11
Motor transcortical	0	0.0	6	25.0	0.001
Conductive and anomia	4	5.3	0	0.0	0.58
Mixed transcortical	2	2.6	0	0.0	0.97

Table 3.8. Relationship between type of Aphasia and hyperlipidemia

Aphasia	Hyperlipidemia 0.042				*P*
	Yes (n=23)		No (n=77)		
	No.	%	No.	%	
Global	12	52.2	20	26.0	0.034
Broca´s	2	8.7	15	19.5	0.37
Thalamic	5	21.7	12	15.6	0.70
Putaminal	0	0.0	11	14.3	0.12
Wernick´s	0	0.0	11	14.3	0.12
Motor transcortical	2	8.7	4	5.2	0.91
Conductive and anomia	2	8.7	2	2.6	0.48
Mixed transcortical	0	0.0	2	2.6	0.94

Table 3.9. Relationship between type of Aphasia and Smoking

Aphasia	Smoking				***P***
	Yes (n=34)		No (n=66)		
	No.	%	No.	%	
Global	14	41.2	18	27.3	0.23
Broca´s	4	11.8	13	19.7	0.47
Thalamic	3	8.8	14	21.2	0.20
Putaminal	3	8.8	8	12.1	0.87
Wernick´s	8	23.5	3	4.5	**0.011**
Motor transcortical	0	0.0	6	9.1	0.17
Conductive and anomia	2	5.9	2	3.0	0.88
Mixed transcortical	0	0.0	2	3.0	0.78

Table 3.10. Relationship between type of aphasia and cardiac factors

Aphasia	IHD (n=23)		HF (n=11)		AF (n=4)		VHD (n=2)		***P***
	No.	%	No.	%	No.	%	No.	%	
Global	8	34.8	10	90.9	2	50.0	0	0.0	**0.009**
Broca´s	6	26.1	1	9.1	0	0.0	0	0.0	0.39
Thalamic	0	0.0	0	0.0	2	50.0	0	0.0	**0.001**
Putaminal	2	8.7	0	0.0	0	0.0	0	0.0	0.67
Wernick´s	5	21.7	0	0.0	0	0.0	0	0.0	0.23

Motor transcortical	0	0.0	0	0.0	0	0.0	2	100.0	**0.001**
Conductive and anomia	2	8.7	0	0.0	0	0.0	0	0.0	0.67

Discussion

The majority of patients with stroke suffer from speech disorder 34-35. Almost 30-42% of stroke patients had aphasia, as one kind of speech disorder 36–38. Aphasia has heavily influenced the life quality of patients and is one of the most important indicators to evaluate the patients' social outcomes 39. On the other hand, Aphasia in stroke patients is associated with increased mortality, decreased rates of functional recovery, and reduced work capability 38. Previous studies referred that many different factors might affect the type of aphasia including the age, gender, type of stroke, and the interval between onset and examination. Furthermore, it is well documented that the probability of suffering from aphasia after stroke rises with advancing age, and older people with stroke are more liable to have aphasia, whereas in patients up to 65 years, the prevalence of aphasia was 25% in males and 11% in females, and in the group of patients above 85 years, the prevalence of aphasia increased twofold in males and 7.5 times in females38

The current study aims to further analyze the distribution of aphasia types in post-stroke patients and explore the relationship of the types of aphasia with sex, age and stroke types, therefore, a total of 100 patients with different types of stroke were enrolled and investigated in this study with a mean age of 62.1 ± 13.2 (range: 37-87) years, moreover, majority of the studied group aged more than 50 years, females were relatively the dominant than males, these findings go generally with the clinical picture of the stroke where the incidence of stroke is increasing once again, primarily about the ageing population. The median age of stroke patients was reported to be 67 years, and 77% of patients were aged ≥ 60 years40. The predictive value of age in the literature, however, depends on the evaluation of the outcome and it is difficult to distinguish between age itself and such age-associated factors as comorbidities that have a negative influence on functional outcome, including ischemic heart disease, hypertension, diabetes, and altered cognitive capacity41.

In the present study, 93% of the patients were right-handed, it is well documented that lateralization of language is associated with handedness, with approximately 90% of right-handed individuals and 70% of left-handed individuals being left hemisphere dominant for language, although some debate exists about exact percentages. In left-handed individuals, about a third are either right hemisphere dominant or have language represented bilaterally (12 introductions)

The current study reported that ischemic stroke was the more frequent type of stroke among cases than hemorrhagic stroke, (76%) vs. (24%), respectively, additionally, cortical stroke was found in (73%) and deep stroke in (27%) of cases, these findings came in line with that reported in previous studies and literature. A previous Indian study conducted in 2009 included 541 stroke patients and documented that the majority, (83.6%) of patients had an ischemic stroke (IS) followed by intracerebral haemorrhage (ICH) (11.6%) and subarachnoid haemorrhage (SAH) by (4.8%), however, our study didn't report SAH among the patients, an earlier study from New Zealand in 2003 also reported approximately similar findings 42.

Regarding the types of aphasia among stroke patients in the present study, global aphasia was found (32%), Broca´s (17%), Thalamic (17%), Putaminal 11 (11%), Werneck's 11, Motor transcortical 6 (6%), Conductive and anomia (4%) and the Mixed transcortical in only(2%). These findings are consistent with those reported in previous studies. In 2011, Vidović et al reported that among patients with aphasia at both admission and discharge, global aphasia was most common, followed by motor aphasia (Broca's aphasia) and nominal aphasia34. On the other hand, Brkic et al reported in 2009, that the most frequent type of aphasia was global (48,5%), then Broca's (23,3%), and Wernicke's (8.4%). Transcortical sensory, transcortical motor and conductive aphasia were diagnosed in a small number of patients43. Nearly similar findings were also reported by Sinanović et al in 2011 37. Kang and his colleagues supported the previous findings and they found that in frequency order, aphasia types were; 27.8% global, 21.6% anomic, 20.6% Broca's, 12.4%

Wernicke's , 7.2% transcortical sensory, 6.2% transcortical motor, 3% mixed transcortical, and 1% conduction 44. In 2012 Kadojic et al, documented that the most frequent clinical type of aphasia was expressive-receptive aphasia (68%), followed by expressive aphasia (29%) and receptive aphasia (3%). It has been suggested that thalamic aphasia patients are known to develop partial fluency and good repetition, but highly variable listening comprehension. Most lesions involving the left frontal or temporal lobes include specific language areas (such as Broca's or Wernicke's area), although cortical lesions that do not involve these areas have been encountered, furthermore, Kang et al study describe relations between post-stroke aphasia severity and lesion type and location.44

The present study reported a variety of risk factors among the studied stroke patients; Hypertension was the more frequent risk factor among stroke patients, it was found in 76% of the cases, smoking in 34%, diabetes mellitus in 29%, and hyperlipidemia in 23%, on the other hand IHD reported in 23% of the cases, HF in 11% and less frequently, AF in 4% and valvular heart disease in only 2% of the cases. Previous studies identified several conditions and lifestyle factors as risk factors for stroke, according to the scientific statement published by the American Heart Association, non-modifiable risk factors include age, sex ethnicity and family history of stroke while modifiable risk factors include hypertension, smoking, diabetes, asymptomatic carotid stenosis, atrial fibrillation and other cardiac diseases which contribute to the risk of 2 thromboembolic stroke, sickle cell disease, and hyperlipidemia. Additional conditions, among them obesity, physical inactivity, poor diet, hyperhomocysteinemia and alcohol abuse, are recognized as less well-documented or potentially modifiable risk factors. The most important modifiable risk factor for both cerebral infarction and intracerebral haemorrhage is hypertension 45–47. There is a direct, continuous and independent relationship between stroke incidence and both systolic and diastolic blood pressure. Control of hypertension decreases the incidence of fatal and non-fatal strokes. Hypertension also interacts with diabetes to increase the risk of stroke 45,48.

The main finding of the present study was a higher proportion of the patients with post-stroke aphasia aged > 50 years, (P=0.001), this finding consistent with previous studies that suggested the probability of suffering from aphasia after stroke rises with age. 35,38.From another point of view, the overall distribution of the types of aphasia across the age revealed that Global, Putaminal, Wernicke Conductive and anomia aphasia were more frequent among patients older than 50 years, while Broca´s, Thalamic, Motor transcortical and Mixed transcortical aphasia were more frequent in patients younger than 50 years, despite this clinically significant difference, it didn't reach the statistical significance, (P>0.05). Despite the insignificant differences in the frequencies of types of aphasia across the age group, one exception was with thalamic aphasia which was significantly more frequent in patients with Ischemic stroke and younger than 50 years compared to those older than 50 years with the same type of stroke.

Recently, it's well acknowledged that age had the following characteristics of the effect on the types of aphasia: patients of Broca's aphasia were younger than that of Wernicke's aphasia, and this difference only can be seen in ischemic stroke 35 . However, our study found that age has no significant effect on aphasic types in both types of stroke, this result may be explained by the small sample size resulting from further subdivision of the studied group by types of aphasia, types of stroke and age group which lead to small number of patients at each subgroup, and on the other hand, we didn't have a further analysis about the specific lesions, which may lead to the different results, nonetheless our findings supported by recent study of Yao et al in 2015 35. However, previous studies reported conflicting findings about the relationship of age and types of aphasia and this subject is still under debate. Although Aphasia was more frequently seen in patients with hemorrhagic stroke, compared to the ones with the ischemic stroke, Sinanović et al found that the difference is not statistically significant. 37.

Regarding the relationship between between the types of aphasia and the risk factors, the present study found that hypertension was significantly associated with a higher proportion of Broca´s and Motor transcortical subgroups of aphasia. Hyperlipidemia was significantly associated with higher frequent Global aphasia while smoking was significantly associated with more frequent Wernick's

Aphasia. From other point of view, patients with heart failure were more likely to have global aphasia while those with IHD have Broca´saphasia , moreover, Motor transcortical was significantly associated with VHD. Previous studies mentioned that Atrial fibrillation 49, Heart failure 50, diabetes mellitus 51,52, Myocardial infarction 53 comorbid conditions in stroke patients are associated with an increased risk of poor outcome following stroke and associated with higher incidence of aphasia.

Previous studies reported conflicting results about the definite association between site of lesion and the type of aphasia where some studies identified a definite association between the location of lesion and the type of 54,55 while other studies did not confirm such association 55,56and the debate continues, however, the subject needs further investigations and more studies 55.

4. Conclusion and future scope

Post stroke Aphasia was more frequent among stroke patients older than 50 years.

Global aphasia was the dominant subtypes of aphasia among the studied group followed by Broca's and Thalamic and the other subtypes were less frequent.

No significant association had been found between the type of aphasia and the age of the patient when compared in total group or across the stroke types.

Ischemic stroke was the more frequent stroke type than hemorrhagic type among the studied group.etween the type of stroke and type of Aphasia.

Hypertension was the commonest risk factors reported among stroke patients with aphasia, followed by smoking, hyperlipidemia and diabetes. Heart failure was the more frequent cardiac risk factor, followed by atrial fibrillation and vulvular heart disease.

Generally, no significant association had been found between the types of aphasia and the risk factors, but some types were associated significantly with some risk factors.

Recommendation

Screening for the main risk factors might help in prevention or reduction in the incidence of stroke particularly in elderly population.

Further studies with larger sample size particularly case control studies are highly suggested for further assessment of the association between aphasia with the risk factors from one side and with the type of stroke on the other side.

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