CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.1684999

Available online at: http://www.iajps.com *Research Article*

ASSESSMENT OF THE ASSOCIATION OF HYPERGLYCEMIA AMONG NON-DIABETIC (HEMORRHAGIC AND ISCHEMIC) PATIENTS: A CROSS-SECTIONAL STUDY

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Abstract:

Objective: *The aim of our research was to find out the association of hyperglycemia with stroke form in non-diabetics.*

Materials & Methods: *The design of our research was cross-sectional, carried out at the Department of Medicine Allied Hospital, Faisalabad (January to November 2017). The number of patients chosen by a researcher with acute stroke was one hundred and seventy-one along with an assessment of hyperglycemia.*

Results: *The age of one hundred and seventy-one victims were in between forty-three to sixty-four years. The numbers of diagnosed acute stroke patients along with hyperglycemia were forty-four (25.73%). Hyperglycemia patients, recorded by the researcher was four (17.39%), thirteen (29.55%), fifteen (28.30%) as well as twelve (23.53%) patients respectively having age category of thirty to forty years, forty-one to fifty years, fifty-one to sixty years and sixty-one to seventy years. Among forty-four hyperglycemia patients, a number of men, as well as women patients, were nineteen (21.35%) and twenty-five (30.49%) respectively. The researcher did not find any important connection of gender with hyperglycemia (p= 0.172).*

Conclusion: *The results of our research displayed a huge percentage of hyperglycemia in non-diabetic acute stroke patients. The researcher did not find any important connection in hyperglycemia with age, the time period of disease along with stroke form as well as sex.*

Keywords: *Diabetes, Stroke, Hyperglycemia, Acute Ictus, Diabetes Mellitus (DM), Cerebrospinal Fluid (CSF).*

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Please cite this article in press Maria Mazhar et al., ***Assessment of the Association of Hyperglycemia among Non-Diabetic (Hemorrhagic and Ischemic) Patients: A Cross-Sectional Study.,*** *Indo Am. J. P. Sci, 2018; 05(12).*

INTRODUCTION:

Heart complication and cancer are the general most reason of mortality along with stroke as the 3rd most usual reason in the whole universe [1, 2]. The dominance of stroke in the entire universe in 2010 was 0.033 billion [3]. Against the decay in the occurrence of disease in western public, the complication of stroke in states of South Asia has inclined as well as considered to increase [3]. Narcotics like thiazides, phenothiazine's, phenytoin, beta-agonists as well as outcomes of stress hyperglycemia are major causes of Hyperglycemia while intense sickness, whereas anti controlling hormone develops liver affecting gluconeogenesis. Researcher diagnoses the hyperglycemia while intense sickness and could be the initial clinical proof of below mentioned undetected form two diabetes [4]. The huge volume of patients may undergo with hyperglycemia just later to intense pressure like stroke even in non-availability of earlier detection of diabetes mellitus [5]. Hyperglycemia while hospitalization, in victims who are not familiar to have diabetes connected with contrary results [5, 6]. The researcher found development in hyperglycemia later to stroke while the initial twelve hours, and again declining or settled in between one to several weeks [6]. The finding of our research may support doctors in well in time treatment of the hyperglycemia, with the primitive treatment of hyperglycemia in stroke patients, the clinician may be qualified to reduce causalities along with other complications of such patients.

Non-diabetics: Researcher declared all those patients who haven't any former record of diabetes, as well as the general HbA1c level, is less than or equal to (5.6%) on checkup as non-diabetic.

Acute stroke: World Health Organization define acute stroke as "increasingly growing indications (less than twenty-four hours of time period) of body single side frailness, communication disorder, cranial nerve palsy, and meanwhile absent mindedness i.e. (GCS is less than 8/15) of brain in absence of dominant reason additional to any other than that of vascular origin as well as non-divergence CT brain displayed damage of gray-white interface, huge reducing clots and low attenuating CSF, hypo denseness of insular cortex as well as basal ganglia and standardized brain tissues.

MATERIAL AND METHODS:

The design of our research was cross-sectional, carried out at the Department of Medicine Allied Hospital, Faisalabad (January to November 2017). The number of patients chosen by a researcher with acute stroke was one hundred and seventy-one consisting of men and women. The age of one hundred and seventy-one patients was in between thirty to seventy years. Researcher expelled all recognized patients of diabetes mellitus, head trauma patients, frequent attack along with acromegaly patients from research. The researcher takes the appropriate previous record of entire patients along with measurement of body mass index and BP (blood pressure) and also viewed for hypertension with the option of yes or no and obese and non-obese patients. The researcher also conducted blood sampling of every patient's glycemia was declared as well as recorded as existing or non-existing if the level of blood sugar is greater than 11.1mmo1/1 (200mg/dl). Researcher records all the information and data concerning to patient on already designed Performa made for the said purpose. Researcher feeds all necessary composed information/data in SPSS software and also measured SD and average for numerical variables. The researcher also measured frequency for absolute variables and utilized Chi-Square test for examination of relation. P value is less than or equal to 0.05, declared as cogent.

RESULTS:

The number of patients chosen by a researcher with acute stroke was one hundred and seventy-one in this research. The age of one hundred and seventy-one patients was in between thirty to seventy years. The number of diagnosed acute stroke patients along with hyperglycemia were forty-four (25.73%). Researcher performed classification of hyperglycemia for age categorization as well as constitute (4) age classes. Hyperglycemia patients, recorded by the researcher was four (17.39%), thirteen (29.55%), fifteen (28.30%) as well as twelve (23.53%) patients respectively having previously mentioned age category of thirty to forty years, forty-one to fifty years, fifty-one to sixty years and sixty-one to seventy years. The researcher did not find any important connection in hyperglycemia with age classes (P= 0.686). The number of men and women in our research was eighty-nine (52.05%) and eighty-two (47.95%) patients respectively. Among forty-four hyperglycemia patients, a number of men, as well as women patients, were nineteen (21.35%) and twenty-five (30.49%) respectively. The researcher did not find any important connection of gender with hyperglycemia (p= 0.172). The average duration of disease was four to sixteen hours. The researcher conducted categorization of hyperglycemia to find out the time period of disease and made two categories. The first category time duration was less than or equal to twelve hours and 2nd category time duration was greater than twelve hours of disease.

The number of patients having a disease time period of less than or equal to twelve hours was one hundred and ten (64.33%) as well as researcher declared hyperglycemia in twenty-five patients (22.73%). The number of patients having a disease time period of greater than twelve hours was sixty-one (35.67%) only and researcher declared hyperglycemia in nineteen patients (31.15%). The researcher did not find any important link in between time period of disease with hyperglycemia (p= 0.228). In a total of one hundred seventy-one patients, the researcher identified Hemorrhagic stroke in ninety-three (54.39%) patients and Ischemic stroke in seventy-eight (45.61% patients. The researcher also identified hyperglycemia in twenty-four (25.81%) and twenty (25.64%) patients with hemorrhagic and ischemic strokes respectively. The researcher did not find any important link in between stroke form and hyperglycemia (p= 0.980).

Table – I: Hyperglycemia Prevalence

Hyperglycemia Prevalence	Number	Percentage
Yes	44	25.73
No	127	74.27

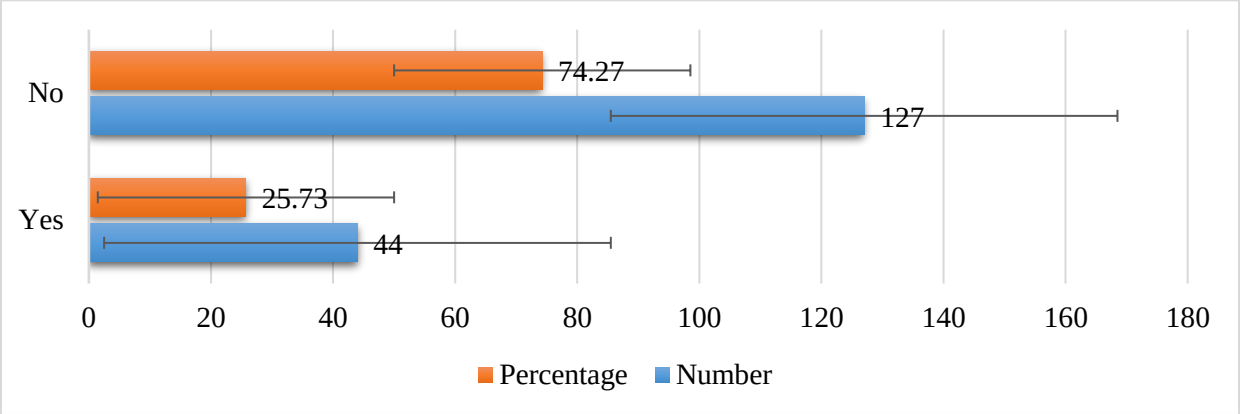
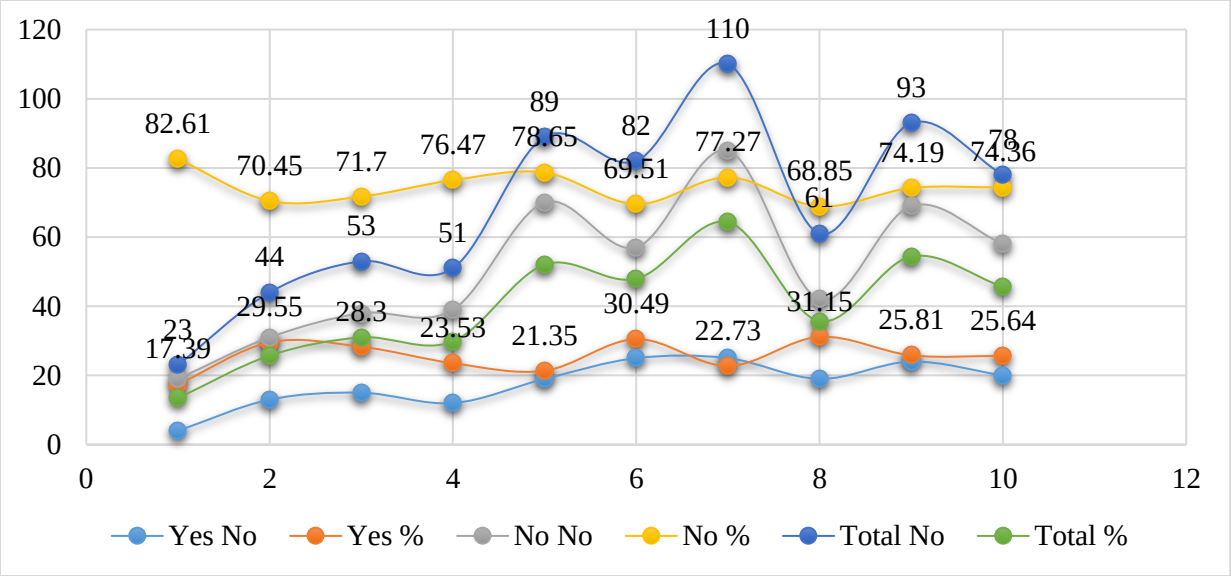


Table – II:

Variables		Yes		No		Total		P-Value
		No	%	No	%	No	%	
Age (Years)	30 – 40	4	17.4	19	82.6	23	13.5	0.686
	41 – 50	13	29.6	31	70.5	44	25.7	
	51 – 60	15	28.3	38	71.7	53	31	
	61 – 70	12	23.5	39	76.5	51	29.8	
Gender	Male	19	21.4	70	78.7	89	52.1	0.172
	Female	25	30.5	57	69.5	82	48	
Disease Duration (Hours)	≤ 12	25	22.7	85	77.3	110	64.3	0.228
	> 12	19	31.2	42	68.9	61	35.7	
Stroke Types	Hemorrhagic	24	25.8	69	74.2	93	54.4	0.980
	Ischemic	20	25.6	58	74.4	78	45.6	



DISCUSSION:

The number of diagnosed hyperglycemia patients in our research was forty-four (25.73%) and leftover one hundred and twenty-seven (73.27%) patients were free from hyperglycemia. In a research that measured the influence of hyperglycemia in acute ictus, gaining stronghold and other later to twenty-four hours, researcher experienced that those patients who are non-diabetic along with hyperglycemia kept both at hospitalization and later to twenty-four hours presented huge rates of reliance, causality as well as brain haemorrhages. The alter adjustment of the organism to hyperglycemia in twice categories of patients, with the beginning of variant phenomenon to overcome the hyperglycemia, with a previously managed adaption in a patient of diabetes, may analyze these variations [7]. The expansion of already diagnosed DM in intense stroke patients is approximately between eight to twenty percent. Almost six to forty-two percent of intense stroke patients have earlier unrecognized diabetes mellitus [8]. In research of supratentorial injuries, diabetes mellitus was identified 24.8% patients, as well as a researcher, declared transient hyperglycemia in 36.3% patients [9]. Zahra F et al in his research has diagnosed twenty percent stroke patients of hyperglycemia who were earlier nondiabetics [10]. Zahra F et al in his research has diagnosed that in non-diabetic, fifty-eight percent had ischemic injuries, as well as forty-two percent, had intracerebral haemorrhage [11]. Hyperglycemia is most usual in patients of intense stroke, present in almost sixty percent of the patients and is considered exasperate cerebral ischemia [9]. It advances to the accession of additional cellular Glutamate, acidosis between cells, cerebral oedema, derangement of blood-brain obstacles and addiction of hemorrhagic conversion [12]. It is noticed that between twenty to forty percent of patients hospitalized along with ischemic stroke are hyperglycemic, frequently in absence of already identified diabetes [8]. That is because of stress hyperglycemia or unidentified diabetes disclosed while an intense incident.

CONCLUSION:

The results of our research displayed a huge percentage of hyperglycemia in non-diabetic acute stroke patients. The researcher did not find any important connection in hyperglycemia with age, the time period of disease along with stroke form as well as sex.

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