TO DETERMINE THE INCIDENCE OF HELICOBACTER PYLORI INFECTION IN PATIENTS WITH ISCHEMIC STROKE.

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ABSTRACT

Introduction: Helicobacter Pyloridistal implications include development of atherosclerosis of arteries that causes ischemic stroke **Objective:** The objective of this study is to find helicobacter pylori antibodies (IgG) frequency among ischemic stroke patients. **Study Design:** Cross-sectional study. **Place And Duration:** Medical Unit-I of Peoples Medical College Hospital Nawabshah, Pakistan for one-year duration from July 2019 to June 2020. **Methodology:** ELISA antibodies Helicobacter pylori (IgG) and colourdopplerUltra sound of carotids was performed on ischemic stroke patients and routine laboratory investigations were also done on each patient. The data was recorded on a proforma with consent from the patient or attendet. **Results:** We enrolled 182 patients in our study via CT scan who presented with ischemic stroke. Out of these 182 patients the number of female patients was 54 that are 29.7 percent of the total patients; the males made up 128 cases 70.3 percent of total cases. The male to female ratio was 2.37:1. 130 subjects included in the study showed Helicobacter pylori IgG antibodies positive, that is 71.42 percent, 105 male and 25 female 80.7% and 19.23% respectively. Our study found that atherosclerosis detected through carotid Doppler ultrasound was present in 54.61%, 71 patients out of 130 H. pylori IgG positive ischemic stroke cases. **Conclusion:** A high proportion of cases were found to have antibodies of H. pylori (IgG) (71.42%) in ischemic stroke.

Key Words: Helicobacter Pylori Antibodies, Ischemic stroke, CT scan brain and Atherosclerosis.

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INTRODUCTION

A gram negative spiral shaped bacillus Helicobacter Pylori, usually present indeep gastric layers, it is the causative bacillus forpeptic ulcer disease and chronic gastritis, however its distal implications include development of atherosclerosis of arteries that causes ischemic stroke[1-2]. The other implications causing atherosclerosis include smoking, raised level of CRP (C-Reactive Protein) in serum, diabetes and hypertension[3-4].

Homocysteinurea, is another reason of instigating atherosclerosis. No exact information on the mechanism of inflammation is available as of now but there are a few hypotheses proposed in some studies regarding atherosclerosis, different factors such as direct plaque modification, oxidative modification and molecular mimicry[5-6]. However, the most prominent of them all supported by evidence is linked with plaque modification, it shows the straight contribution of Helicobacter Pylori by identification of its DNA via PCR in plaques of atherosclerosis. There are also some other studies which support the idea regarding H. pylori's contribution in development of the disease in review are; apoptosis intensification, reduction in proliferation and angiogenesis, increased polymorpho-nuclear cell trans-endothelial migration[7-8]. H. pylori presents with diverse genotypes and the only strain that is found to be relevant with ischemic coronary artery disease is CAG-A (Cytotoxin associated-Gene-A)[9].

To find out the virulent gene protein, the equipment and facilities were not available in our study, however we used the H. pylori antibodies (IgG) frequency via ELISA with support of Color Doppler Ultra Sound to find out evidence of atherosclerosis in carotid arteries in ischemic stroke patients, confirmed first via CT scan. The objective of our study was to discover H. pylori status to point out need of advanced studies in ischemic stroke cases.

METHODOLOGY

This cross-sectional study was done in the Medicine Unit-I of Peoples Medical College Hospital Nawabshah for one-year duration from July 2019 to June 2020. A total of 182 patients

were selected for this study. Purposive sampling that was non-probable in nature was used to select patients of ischemic stroke confirmed by CT scan for sampling in this study. Exclusion criteria was; patients or attendants (in cases where patients were suffering from cognitive impairment), who did not consent to participate in the study, presented with intra-cerebral bleeding, a prior peptic ulcer disease or presenting with sub-arachnoid hemorrhage or patients with intra-cranial space occupying lesions on CT scan were excluded from the study.

An informed consent was obtained from study patients or attendants. An ELISA H. pylori antibody test (sensitivity96.0%, specificity 97.4) was used in the study. Carotid artery test with colour Doppler ultrasound, sensitivity 81.5%, specificity 98.9% was performed. An examination of the patient and the observations in the examination were recorded for all patients, other tests included; Urine examination, Complete blood count, Chest X-ray, ECG, CT scan and blood glucose levels (both random and fasting) were done in the study.

RESULTS
We confirmed 182 patients in our study via CT scan who presented with ischemic stroke. Out of these 182 patients the number of female patients was 54 that is 29.7 percent of the total patients, the males made up 128 cases 70.3 percent of total cases. The ratio of male to female sex was 2.37:1.

130 subjects included in the study showed Helicobacter pylori antibodies in their serum, which is 71.42 percent, 105 male and 25 female 80.7% and 19.23% respectively. Our study found that atherosclerosis was found in 54.61%, 71 patients out of 130 positive H. pylori ischemic stroke cases. The frequency details are given in table.1 of other major risk factors.

The Demographic assessment of the patients is given in Table-1		
Males	128	70.3%
Females	54	29.7%
Age group		
20-30	40	21.97%
30-50	115	63.18%
50-70	27	14.83%

Table II: Incidence of additional major riskfactors in ischemicstroke patients who are H. pylori IgG +ve (n= 182)

Risk factors	Male	Female	Total
Hypertension	64 (35.2%)	22 (12.1%)	86 (47.3%)
Diabetes Mellitus	26 (14.3%)	19 (10.4%)	45 (24.7%)
Smoking	20 (11.0%)	05 (2.7%)	25 (13.7%)
Dyslipidemia	18 (9.9%)	08 (4.4%)	26 (14.3%)
Total	128 (70.3%)	54 (29.7%)	182 (100%)

Frequency of H. Pylori antibodies in patients with ischemic stroke given in Table-III

H. Pylori antibodies (n=130 out of 182)		
Males	105	80.7%
Females	25	19.23%
Atherosclerosis present	71	54.61%

DISCUSSION
Internationally a significant number of studies have been taken up on H. pylori in ischemic stroke but there is little work found locally in this regard[9-11]. A case-control study found that presence of H. pylori antibody posed patients at higher risk of ischemic stroke (accustomed 3.31 OR; CI 95%. 1.16 to 9.57). The findings of our study are in line with this study. Another study by piettroiusti et al, studied three patient groups; Thepatients in Group-A were having major vessel stroke (n=139), In Group-B there were patients of cardioembolic stroke (n =62) andhealthy control patients were in Group-C (n =150). Theyinstitute the occurrence of H. Pylori (72%) in Group-A,in Group-B 63.9% and Group-C with 70.2% along withincrease pervasiveness of positive CAG-A virulent strains inA Group (42.8%) (3.04 OR, CI95%, 1.41 TO 6.50)[12-15].

In a study done by Ponzetto et al, he found that control group in his study showed lower occurrence of H. pylori infection in cases of ischemic stroke [64/80 (80%) versus190/320 (59.4%)][16-17]. 80 percent seropositivity in BruneckPopulus was found of a virulent H. pylori strain. A noteworthy seropositivity was found by Gabrielli et al, of CAG-A viral strain, carrying H. pylori more than the control cases (adjusted 2.99 OR, CI95%, 1.51 to5.90)[18-19]. Sawayama et al, found that H. pylori virulent infection that is chronic in nature is greatly

correlated with small artery occlusion strokes (9.68 OR, CI95%, 3.57 to 33.10)[20-21]. A study conducted by Park et al, shows that H. pylori lgG was found to be in 80 percent stroke cases versus 60 percent in control, another finding of the study is that the large artery stroke sub type disease showed more seropositivity 87.7 percent[22-23].

In conclusion our study found results consistent with these studies; we found higher H. pylori on ELISA in patients with ischemic stroke. A study by De Bastiani et al included 106 patients with atherosclerotic stroke and found that H. pylori positivity was 63 percent in such patients. When we compare these results with our study their results concerning serum IgG level were significantly lower in patients of ischemic stroke[24]. This suggests that findings of studies may differ according to living standards of a population or geographical changes. Another case control study, undertaken by masoud et al showed that case control group of 91 people and 80 [45/80(56.3%)] ischemic stroke patients had a 72.5 percent occurrence [66/91 (72.5%)] of H. pylori seropositivity. The results of this study are very much similar to our study results of [121/150 (80.7%)][25].

CONCLUSION

Our study found that a high number of cases showed H. pylori antibodies (lgG) in ischemic stroke instances. We suggest that an advanced study on a larger population via sophisticated equipment should be conducted to prove that there is a significant relation between H-Pylori infection and ischemic stroke.

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