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THE ABO BLOOD SYSTEM AND ITS INFLUENCE ON STROKE RISK

Introduction

We are all familiar with the traditional risk factors for any vascular accident (hypertension, diabetes, age etc..) but have we ever considered that the blood group that we are born with just like our sex could have an impact? Indeed, the NIH has followed up with 30,239 persons during 5.8 years to assess who had a stroke and took in consideration all the traditional risks and even race. They found out that AB group had an 86 % greater chance of getting a stroke compared to O group especially if these patients do not have diabetes. In an effort to assess the percentage of patients who had a stroke from each blood type in a small random group we decided to perform this study.

Goal

To assess the percentage of patients who had stroke from each blood group taking in consideration the traditional risks as well.

Material and Methods of research

We went to the hospital wards and did an oral questionnaire asking for the name, age, sex, blood group, concomitant diseases like hypertension and diabetes, some bad habits like smoking and drinking, and even having a domestic pet at home. There was in total 53 patients from the neurological department in Gomel State Clinical Hospital N 3 and the military hospital as well as in the department of rehabilitation after stroke

The results of the research and their discussion

Overall, the average age of all participants was 65 years (67 years for females and 62,5 years for males). 51 % of the subjects were females, 58 % had hypertension, 15 % had diabetes, 25 % smoked, 47 % drank alcohol and 62 % had pets. The percentage of patients in each blood group is shown in the figure 1. Their average age is each shown in figure 2, and the percentage of each traditional risk is presented for each blood group independently in figure 3.

Even though the average age of people who have a stroke having AB blood group is the highest, this is highly influenced by other factors, since none of them smoked, only 28 % of them drank alcohol, 57 % had hypertension and only 14 % had diabetes.

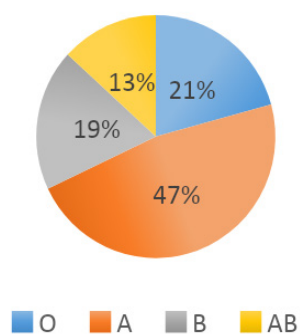


Figure 1 – Percentage of patients in each blood group

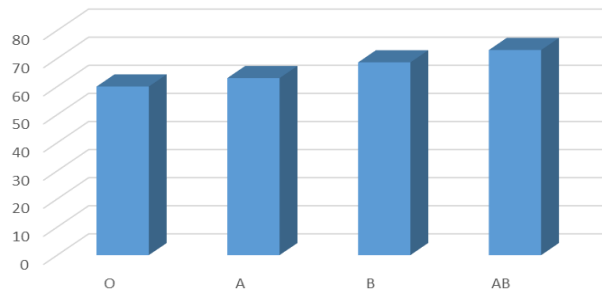


Figure 2 – Average age

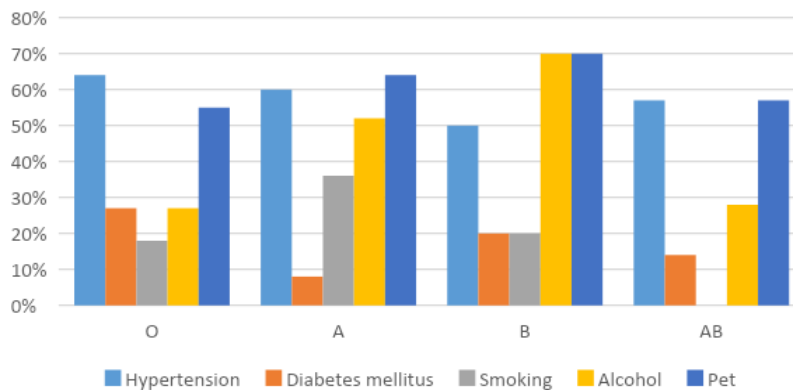


Figure 3 – Percentage of each traditional risk is presented for each blood group

The NIH study had taken blood samples to explain the strong link that they found between the different blood groups and the risk of stroke, and has found that ABO antigens are also expressed on vascular endothelium and through unclear mechanisms, associated with levels of the procoagulant proteins factor VIII and von Willebrand Factor (VWF) and markers of endothelial function such as p-selectin and soluble intracellular adhesion molecule (Tamara N Bongers 1, 2006) (1).

Compared to participants with blood type O, mean factor VIII levels were 42 % higher in participants with blood type AB, 33 % higher in participants with blood type B, and 22 % higher in participants with blood type A. These associations remained significant after adjusting for age, sex, and race (all $p < 0.001$). (Neil A. Zakai, 2014) (2).

Conclusion

Our small study didn't comply with the result of the NIH research since the average age of people with AB group was much greater than those with O group (73y versus 60y). But we need to keep in consideration the limitation of the study, and the influence of various other factors. Furthermore, the link between the ABO system and the risk of vascular problems has to be studied more rigorously and might be considered an additional risk factor in CHADS2-VASc score and the way we deal with patients of different blood groups in the future.

LITERATURE

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