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Original Research Article

The Relevance of Secretor Status perspectives in individuals

[1]Kanu Stella Ngozika*, [2]Nnodim Amarachi Promise and [3]Nnodim Johnkennedy

[1,2,3]Department of Medical Laboratory Science Imo State University Owerri.

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***Corresponding author: Kanu Stella Ngozika**
Department of Medical Laboratory Science Imo State University Owerri.

Abstract

Those that release blood group antigens in their tears, perspiration, saliva, semen, and serum are said to have secretor status. People who do not release their blood group antigens into their bodily fluids are known as non-secretors. One's vulnerability to certain diseases and infections is increased when blood type antigens are absent from bodily fluids. The risk of developing bacterial and viral infections, cancerous and precancerous oral disorders, chronic periodontitis, autoimmune diseases, diabetes, heart disease, and dental caries is higher in non-secretors. The secretor gene produces the enzyme fucosyltransferase 2. The sugar moiety of glycolipids and glycoproteins is enhanced by this enzyme with fucose. H is created in secretions by fucosyltransferase 2 on precursor oligosaccharides chain (type A). Fucosyltransferase 3 can produce Le/b by incorporating fucose into H. Therefore, everyone with a Le/b phenotype is a secretor. Fucosylated oligosaccharides are present on the surface of cells and are involved in a number of important biological processes, including adhesion, motility, and differentiation. Compared to non-secretors, ABH secretors' saliva and other bodily secretions include a significant amount of carbohydrates.

Keywords: *secretor, status, relevance.*

INTRODUCTION

The capacity of an individual to leak blood group antigens into bodily fluids is referred to as their secretor status.It describes whether or not a person's body fluids—such as saliva, tears, breast milk, urine, and semen—contain water-soluble ABO blood group antigens. A person is called a secretor if they secrete these antigens in their body fluids; a non-secretor does not. A "secretor" in the blood bank sense is a person who can produce ABO antigens in their plasma and secretions. [1] People who release blood group antigens in bodily fluids such saliva, sweat, tears, semen, and serum are referred to as ABO secretors; people who do not secrete blood group antigens in bodily fluids are referred to as non-secretors.

On mucosal cells, secretors express a broad variety of fucosylated histoblood group antigen carbohydrates (HBGA); nonsecretors (FUT2-/-) exhibit a more constrained range of HBGAs.Nonsecretors thus have infections with a less varied range of norovirus strains, including resistance to the epidemiologically predominant GII strain [2]. To put it simply, someone is classified as a secretor if they secrete their blood type antigens into bodily fluids like mucus or saliva. In contrast, a non-secretor does not secrete any, or very little, of their blood type antigens into these fluids.Some health problems, such as increased vulnerability to bacterial and viral infections, gastrointestinal disorders, are thought to be more common in those who do not produce the antigens. problems brought on by microorganisms, such as stomach ulcer-causing Helicobacter pylori Given that it is linked to immune system function and other blood groups, such as the Lewis and ABO blood groups, the capacity to release antigens into bodily fluids is significant in both medicine and genetics[3].There are two possibilities in the secretor system's genetics.There are two types of people: secretors and non-secretors.It makes no difference what blood type you have—A, B, AB, or O.It is possible to be an A secretor or a non-secretor, a B secretor or a B non-secretor, etc., according to this.[4]

A person who secretes their blood type antigens into bodily fluids and secretions, such as saliva in the mouth, mucus in the respiratory and digestive tracts, etc., is known as a secretor.

This essentially indicates that a secretor mixes their blood type with certain bodily fluids. Conversely, a non-secretor adds very little to no of their blood type to these same liquids. Generally speaking, secretors make about 80% of the population, with non-secretors making up 20% [5].

Benefits and Drawbacks of Being a Secretor

First of all, when it comes to blood types, there isn't a certain benefit associated with any specific ABO blood type. Each blood type has unique benefits and drawbacks. However, this does not appear to be the case with the Secretor gene. Generally speaking, it appears that not working as a secretary could pose a health risk.

Fundamentally, the ability to secrete blood type into mucus, saliva, and other bodily fluids provides an extra layer of defense against external agents, including microbes and lectins [6].

Second, having the trait of being a Secretor may represent a general inclination to support a stable, blood-type-friendly gut bacterial environment. In fact, a large number of the beneficial (probiotic) bacteria in the digestive system consider blood types to be among their preferred diets. Secretors have a far more consistent supply of food for their bacteria since the mucus lining the digestive tract contains a continual supply of blood type[7].Predictable patterns in non-blood type components of physiology have a close correlation with Secretor/Non-secretor status; this suggests that, like ABO blood types, additional genetic information must be related to the Secretor gene.Depending on the Secretor status, certain physiological aspects, like the relative activity of an enzyme called intestinal alkaline phosphatase, clotting propensities, the validity of various tumor indicators, and the overall effectiveness of the immune system, follow predictable trajectories [8].

Secretor phenotypes and intestinal and serum alkaline phosphatase activity are highly linked. In general, non-secretors have reduced alkaline phosphatase activity regardless of their ABO blood group. Only 20% of the active in the secretor groups is thought to be present in the serum alkaline phosphatase activity of non-secretors [9].

In fact, blood type has a big influence on clotting capacity. In fact, it has been calculated that the ABO blood type directly correlates with a large fraction (30%) of the genetically determined variance in plasma concentration of the von Willebrand factor (vWf) clotting factor. People with blood group O typically have the lowest concentration of this clotting factor [10].

Non-secretors have shorter bleeding times and a propensity for higher levels of clotting factor VIII and vWf, whereas secretors clot the slowest. Blood viscosity is really further influenced by the interaction between ABO and Secretor genetics. This basically indicates that a non-secretor A will be at the extreme end of the spectrum, with the thickest blood viscosity, the slowest bleeding times, and the highest likelihood of having excessive platelet aggregation. O Secretors will be at the other extreme of the spectrum, with the longest bleeding period, the thinnest blood, and the least propensity for platelet aggregation. As a result, non-secretors—especially type A personalities—generally have the highest chance of developing atherothrombotic and cardiac diseases in the future [11].

Susceptibility to disease in Secretors status

In general, non-secretors have oral diseases of a higher degree. This includes a rise in cavities and dysplasia, or precancerous alterations to the tissue. According to statistics, blood type A secretors have the fewest cavities [12].

Moreover, non-secretors typically experience greater stomach issues. According to a number of studies, non-secretors experience duodenal and peptic ulcers at a considerably higher frequency. Additionally, non-secretors are less immune to Helicobacter pylori infection (a microorganism linked to ulcers). It seems that in people unable to secrete their blood type into the digestive tract, this bacterium can colonize more easily and cause more inflammation [13]. Celiac disease is more likely to develop in non-secretors (up to 48% of patients with the condition have been observed to be non-secretors).

Typically, being a non-secretor is associated with health disadvantages related to lung function. Some researchers have hypothesized that while being a secretor may provide some protection against damaging environmental attacks on our lungs, being a non-secretor may predispose an individual to detrimental effects [14].

Asthma and the non-secretor phenotype were substantially correlated among coal workers. Additionally, secretors seem to be somewhat shielded against some of the harmful effects of cigarette smoking. Empirical data indicates that the capacity to release ABO blood type antigens may mitigate the likelihood of developing Chronic Obstructive Pulmonary Disease (COPD).

Additionally, there is a modest increase in the likelihood of having a habitual snoring problem in a non secretor. Numerous autoimmune illnesses, such as ankylosing spondylitis, reactive arthritis, psoriatic arthropathy, Sjogren's syndrome, multiple sclerosis, and Grave's disease, seem to be more common in non-secretors[15].

Non-secretors have a higher chance of getting diabetes, particularly adult-onset diabetes, and they may also have a higher chance of complications from the disease. The conclusion that non-secretors are at risk for myocardial infarction and heart disease can be drawn from the data. This is especially true for men.

Non-secretor blood types and a metabolic syndrome known as "Syndrome X" have been linked by a number of researchers. A collection of metabolic issues known as syndrome X include high blood pressure, a prothrombic state (predisposition to clotting), obesity (especially central obesity or a predisposition to gaining weight in the abdomen), elevated plasma glucose (high blood sugar), lipid regulation issues (elevated triglycerides, increased small low-density lipoproteins, and decreased high-density lipoproteins), and insulin resistance (your cells do not respond effectively to the insulin that you create). This group of metabolic diseases appears to work together to accelerate the occurrence of adult-onset type II diabetes, atherosclerosis, and cardiovascular disease. Although insulin resistance may be the primary cause of the issue, it seems that each of these metabolic abnormalities has a role in health issues [16].

The blood type Non-secretor has been linked to alcoholism. Positively, those who drink alcohol seem to have a greater protective effect on lung function and a reduced risk of heart disease than those who secretor. Moderation is the key when it comes to alcohol use for non-secretaries and everyone else, in general Renal scarring is significantly more common among non-secretors, who also have a higher propensity for increased inflammation and repeated UTIs. On the other side, having blood type Secretor provides some protection, since it significantly lowers the chance of developing renal scarring and reduces the risk of recurring UTIs by more than 50% [17].

Research has indicated a higher likelihood of Candida difficulties among non-secretors based on the potential of non-secretor saliva to not only fail to prevent Candida attachment, but possibly even enhance the binding of Candida to your tissue. We discover that this to be accurate. Non-secretors are far more likely to struggle with recurring infections and to be carriers of Candida. Given that Candida also seems to have an easier difficulty colonizing (attaching to) the blood type O antigen, blood type O non-secretors may be the most affected of the non-secretor blood types. It is well known that secretors have greater IgG and IgA antibody levels. The association between non-secretor status and a higher incidence of bacterially-induced heart valve issues may be explained by the absence of IgA antibodies. Since IgA works in a manner similar to how a palisade wall or rampart defends a town from invasion, most, if not all, non-secretors experience issues with gut permeability, or "leaky gut" [18].

CONCLUSION: The difference in secretor and non-secretor status across patients suggests that non-secretors may be at a higher risk of illness. Saliva and other fluids containing these antigens may provide a protective effect.

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