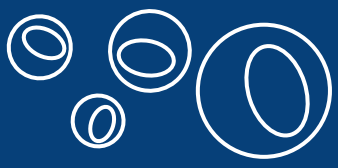
Paroxysmal Nocturnal Hemoglobinuria

About paroxysmal nocturnal hemoglobinuria (PNH)

PNH is a debilitating illness that occurs when a part of the immune system called the complement system attacks red blood cells (RBCs) lacking certain regulatory proteins.[1-4] This destruction of RBCs is called hemolysis.[5-8]

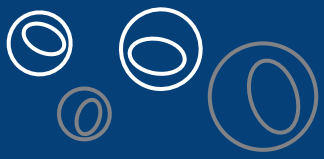
The complement system – an often-overlooked part of our immune system – is a collection of immune proteins that is part of our first line of defense and helps protect us against infection.[5-8]

Without PNH



Healthy RBCs have protective proteins and can carry sufficient oxygen from the lungs to the whole body.[8]

With PNH



Unhealthy RBCs are missing protective proteins, which results in them getting attacked and destroyed by the complement system.[8]

Hemolysis lowers your hemoglobin levels

As the RBCs are destroyed, hemoglobin, a protein in RBCs that carries oxygen throughout the body, decreases.

12 to **16** g/dL for women
13 to **18** g/dL for men

✓ Normal adult hemoglobin levels vary, but generally are 12 to 16 g/dL for women and 13 to 18 g/dL for men.[9]

✗ Hemoglobin levels that are steady but below this may mean that PNH is not well controlled.[2]

There are two types of hemolysis that can occur when you have PNH:

Intravascular hemolysis (IVH)
RBCs are destroyed within the blood vessels (eg veins or arteries)[10]

Extravascular hemolysis (EVH)
RBCs are destroyed outside the blood vessels, mostly within the liver and spleen[10]

10-20

An estimated 10-20 per million people worldwide live with PNH[11]

30-40

Although PNH can develop at any age, it is most often diagnosed in people between 30-40 years old[1,12]

2 years

It takes an average of approximately 2 years to get a PNH diagnosis[13]

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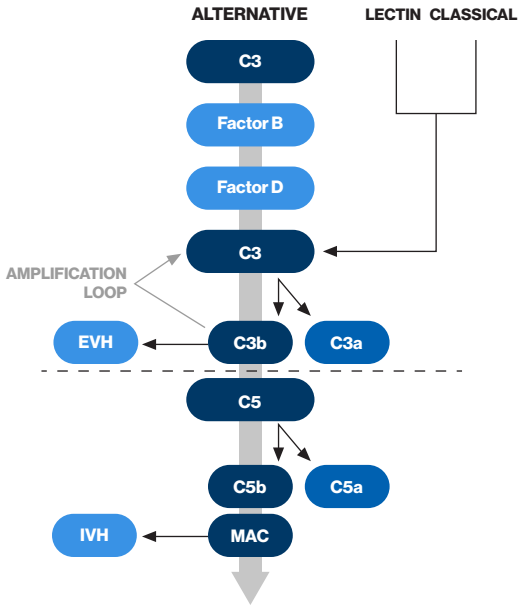
Significant unmet needs may persist as some people living with PNH may remain anemic and dependent on blood transfusions despite treatment with C5 inhibitors.[11,14]

The complement system and its role in PNH

The complement system has three pathways: classical, lectin, and alternative. The alternative pathway constantly monitors the body for threats and amplifies immune responses triggered by the other two pathways.[5-7]

A protein in the blood called Factor B plays a role in activation of the alternative complement pathway.[15,16]

In PNH, the body acquires a genetic mutation that results in the production of abnormal RBCs. These RBCs are missing protective proteins that regulate complement activity. The complement system becomes unregulated and ultimately causes hemolysis.[1,3-4]



Unmet needs remain

PNH is chronic and the only potential cure is a bone marrow transplant.[11]

About 84% of patients on C5 inhibitors may have anemia (hemoglobin levels less than or equal to 12g/dL), with about one-third requiring at least 1 RBC transfusion in 12 months.[14]

IVH and EVH in PNH should both be addressed as both can lower levels of hemoglobin. If not, symptoms associated with hemolysis, such as anemia, may continue.[14] Uncontrolled signs and symptoms may significantly impact patients.[11,14]

Currently, the most common treatments for PNH are called C5 inhibitors.[14]

C5 inhibitors, which are given by infusion, require patients to adapt their schedules around infusion treatments.[14]

References

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