



Supporting patients and families
living with aHUS

Fact Sheet

About aHUS

- Atypical Hemolytic Uremic Syndrome (aHUS) is a very rare, chronic and life-threatening genetic condition
- Affecting between 60 to 90 patients in Canada, the incidence of aHUS is estimated to be 1 in 500,000 people per year in the United States¹
- aHUS can occur at any age, and while the disease does affect children, almost one-half of people affected are adults.²
- aHUS is caused by chronic, uncontrolled activation of the complement system, a part of the body's natural immune system
- As a result, the immune system attacks the body's unhealthy and healthy cells, which can cause abnormal blood clotting and blood vessel damage^{3,4}
- The presence of blood clots causes damage to organs, leading to heart attack, stroke, kidney failure and death⁵
- Within a year of diagnosis, over half of patients will need dialysis, will have irreversible kidney damage, or will not survive⁶
- The majority of patients progress to end-stage kidney failure within three years of diagnosis^{5,7}
- Death rates amongst aHUS patients are as high as 25 per cent, and progression to end-stage kidney disease occurs in more than 50 per cent of patients^{5,8}
- Kidneys have been transplanted in aHUS patients with permanent kidney failure, however, the disease recurs in 60 per cent of patients, and more than 90 per cent of patients experience failure of transplanted kidney⁹

Diagnosis

- Due to the rarity of aHUS, it can be difficult to diagnose, and many doctors have never encountered a case of it
- The causes of aHUS are not fully understood, but in 70 per cent of cases it is associated with an underlying genetic or acquired abnormality of the complement system¹⁰
- Doctors and their health care team must look at many factors when making a diagnosis – including clinical symptoms, lab findings, and results from more specialized tests such as gene analysis¹¹
- During initial onset of aHUS, or during recurring episodes, tell-tale signs can be detected from lab findings relating to:⁹
 - platelet levels
 - hemoglobin and haptoglobin levels
 - creatinine levels
 - BUN (blood urea nitrogen) levels

Symptoms

- aHUS disease can be characterized by three key features:¹²
 - thrombocytopenia (low platelet count in the blood)
 - anemia (low red blood cell/platelet count in the blood)
 - kidney symptoms (starting as acute kidney failure but can progress to end-stage kidney disease)
- aHUS can be triggered by pregnancy, certain drugs, or an infectious event¹
- There are a number of symptoms secondary to kidney failure, which include:¹⁰
 - nausea and vomiting
 - confusion
 - shortness of breath (dyspnea)
 - fatigue

- In aHUS, patients present with symptoms of diarrhea, fatigue, irritability, and lethargy to a point where hospitalization is needed¹²

Treatments – Then and Now

Plasma Therapy & Dialysis

- The prognosis for patients with aHUS is very poor,¹³ with existing supportive therapies unproven and unreliable
- The management of aHUS has relied on plasma infusion and plasma exchange therapies with variable results¹⁴
- To date, there have been no well-controlled trials that show plasma exchange or plasma infusion to be safe or effective in aHUS¹⁵
- In studies where the majority of patients with aHUS were treated with plasma therapy, patient outcomes were reported as being poor¹⁶
- Despite plasma exchange or plasma infusion, 65 per cent of all aHUS patients die, require dialysis, or have permanent kidney damage within the first year after diagnosis⁶
- Dialysis cannot completely compensate for the loss of kidney function, and can lead to deadly infections and death¹⁷
- Complications related to plasma exchange have been reported to occur in up to 55 per cent of plasma exchange sessions in children and in 15 per cent of sessions in adults¹⁶

Eculizumab (Soliris®)

- Eculizumab was approved by Health Canada as the first and only pharmaceutical treatment for aHUS¹⁸
- Eculizumab has shown greater efficacy than plasma therapy in the prevention and treatment of aHUS^{16,19}
- The effectiveness of eculizumab has revolutionized the management and outcomes of aHUS and has opened up the possibility of kidney transplantation in patients with aHUS¹⁶
- Experts believe that eculizumab is becoming the new standard of care for aHUS, providing improved control of the disease over plasma exchange, with a good safety profile¹⁶
- Once a patient receives a definitive diagnosis of aHUS from lab tests including the ADAMTS-13 test, experts recommend the use of eculizumab as first-line therapy in children and adults¹⁶
- Clinicians also advise that patients with native or transplanted kidneys whose aHUS recurs be treated with eculizumab¹⁶ and that treatment be initiated as early as possible for optimal recovery of kidney function¹⁹
- Switching from plasma therapy to eculizumab has been shown to improve kidney function even in patients with long-lasting and stable chronic kidney disease¹⁶
- Evidence of plasma resistance or dependence should lead to a prompt switch to eculizumab for optimal recovery of kidney function¹⁶
- In clinical trials, eculizumab has been proven effective in preventing blood vessel damage and abnormal blood clotting^{20, 21}
- In June 2013, an international study in the *New England Journal of Medicine* showed aHUS patients treated with eculizumab were able to discontinue plasma infusion/exchange and dialysis therapies, and saw improved kidney function, normalized blood levels, reduced blood vessel damage and decreased risk of blood clots²² - showing the disease is controlled
- Eculizumab has also been shown to significantly improve patients' health and quality of life²³

Access to Treatment

- According to the manufacturer, eculizumab has been made accessible to aHUS patients through public funding in over 40 countries, including Australia, whose health ministry committed to funding the drug in September 2014,²⁴ based on the strong body of available clinical data
- In Canada, Quebec is the only province to provide aHUS patients with public funding for eculizumab through their exceptional access program, *Patient d'exception* – creating inequity amongst patients across Canada

- In January 2015, the National Institute for Health and Care Excellence (NICE) in England issued its final guidance on eculizumab, recommending it for funding for all patients in England living with aHUS, acknowledging that eculizumab is a “significant innovation,” as it gives aHUS patients the possibility of avoiding end-stage renal failure, dialysis and kidney transplant, as well as other organ damage²⁵
- Eculizumab is approved and publicly funded in Canada for the treatment of another ultra-rare and life-threatening disorder called paroxysmal nocturnal hemoglobinuria (PNH)
- With so few patients living with this ultra-rare disease, the cost of funding eculizumab represents a minute portion of public health spending

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