model, which achieved an accuracy of 97.42%. Heatmaps revealed sharp morphometric transitions during the sickling process, while individual cell tracking uncovered diverse behavioral patterns—ranging from immediate sickling to complete resistance.The assay enabled quantification of the percentage of sickled cells over time and the generation of a sickling time distribution across the entire population. These findings highlight distinct subpopulations with varying degrees of resilience to hypoxia-induced deformation. The platform also opens opportunities to explore modulatory factors, such as fetal hemoglobin (HbF). Ongoing experiments with bimodal cHbF distributions aim to determine the threshold HbF content associated with delayed or suppressed sickling. **Discussion and conclusion:** Altogether, this high-content imaging approach provides a powerful and scalable framework for dissecting the pathophysiology of SCD, offering valuable insights for personalized risk assessment and therapeutic screening. This study was financed, in part, by the São Paulo Research Foundation (FAPESP), Brazil (Process Number: #2022/12856-6).

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CLINICAL OUTCOMES AND SAFETY OF ECULIZUMAB IN ATYPICAL HEMOLYTIC UREMIC SYNDROME: A SYSTEMATIC REVIEW

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Introduction: Atypical hemolytic uremic syndrome (aHUS) is a rare, life-threatening thrombotic microangiopathy caused by dysregulated complement activation, leading to hemolysis, thrombocytopenia, and renal failure. Without timely treatment, it carries high morbidity, mortality, and risk of end-stage kidney disease. Eculizumab, a monoclonal antibody against complement C5, has transformed management by preventing complement-mediated damage, improving hematologic and renal outcomes, and reducing recurrence, including post-transplant. However, uncertainties remain about long-term efficacy, optimal treatment duration, and safety, warranting comprehensive evidence synthesis. **Objectives:** To systematically review and synthesize evidence on the clinical outcomes of eculizumab in patients with atypical hemolytic uremic syndrome (aHUS) and related thrombotic microangiopathies, focusing on its effects on renal function, hematologic parameters, recurrence and rejection rates post-transplant, outcomes in specific patient populations, and safety profile. **Material and methods:** A systematic review was conducted in accordance with PRISMA guidelines. PubMed was searched for studies published between 2017 and 2025 using terms related to eculizumab, atypical hemolytic uremic syndrome, and clinical outcomes, including systematic reviews and meta-analyses. After removing duplicates, studies were screened by title, abstract, and full text. Nine articles met the eligibility criteria and were included in the qualitative synthesis. **Discussion and conclusion:** Across systematic reviews, eculizumab, a C5 inhibitor, demonstrated consistently favorable outcomes in atypical hemolytic uremic syndrome (aHUS) and related thrombotic microangiopathies (TMA). In a Cochrane review (n = 137), no deaths occurred after 26 weeks of therapy. Renal function improved significantly, including in post-transplant patients, with higher GFR (+59.57 mL/min), lower serum creatinine (−126.93 μmol/L), and markedly reduced dialysis needs (OR = 0.13); similar stabilization or recovery was observed in drug-associated TMA cases. Hematologic recovery was robust, with complete TMA response in 60–65% at follow-up, platelet count increases (+163.42 × 10^9/L), and LDH reduction (−336.61 U/L). In post-transplant settings, recurrence (OR = 0.05) and rejection (OR = 0.09) risks were substantially reduced. Pediatric data (n = 940; 682 on eculizumab) showed improvement in most cases and 1.6% mortality. Pregnancy-associated aHUS remission rates were higher with treatment (88% vs 57%), and 93% of SLE-associated TMA patients improved, with nearly half discontinuing therapy without relapse. Serious adverse events occurred in 42%, including rare meningococcal infections. Overall, eculizumab yields significant renal and hematologic benefits, lowers recurrence and rejection post-transplant, and is effective across diverse patient groups, though vigilance for adverse events remains essential. Eculizumab is a highly effective therapy for aHUS, producing significant improvements in renal function, hematologic parameters, and reducing dialysis needs. It lowers recurrence and rejection rates post-transplant and demonstrates efficacy across pediatric, pregnancy-associated, and autoimmune-related TMAs. While serious adverse events, including rare meningococcal infections, can occur, the overall benefits in survival, remission, and organ recovery strongly support its use, with further studies needed to optimize long-term management.

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CO-HERANÇA DA ANEMIA FALCIFORME COM A DELEÇÃO ALFA -3.7 KB E A VARIANTE DE GLOBINA ALFA HB STANLEYVILLE-II: RELATO DE CASO

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