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# PREVALENCE AND INCIDENCE OF ERYTHROCYTOSIS IN LIVER TRANSPLANT RECIPIENTS

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# Introduction

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- This study investigated the prevalence of post-liver transplant erythrocytosis and its related factors. Erythrocytosis is a known complication after liver transplantation that can increase blood viscosity and thrombosis risk.



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# Methods

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- A total of 351 liver transplant patients between 2014 and 2022 were included, excluding those with pre-existing erythrocytosis or known causes of secondary erythrocytosis. Demographic data, transplantation etiology, the time interval from transplantation to erythrocytosis occurrence, medications, blood groups, BMI, and erythropoietin levels were analyzed.



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# Result

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- The study included 228 men (64.96%) and 123 women (35.04%), with a mean age of  $45.8 \pm 15.9$ . The most common transplantation etiologies were hepatitis B (27.06%), cryptogenic cirrhosis (24%), and autoimmune hepatitis (15.10%). Polycythemia was observed in 36 patients (10.25%) with a mean age of  $36.1 \pm 13.2$ , and erythrocytosis was observed in 9 patients (2.56%) with a mean age of  $32.3 \pm 11.3$ . The mean time interval from transplantation to polycythemia and erythrocytosis was  $18.8 \pm 13.2$  and  $26.44 \pm 13.52$  months, respectively. Cryptogenic cirrhosis was the predominant etiology in patients with polycythemia and erythrocytosis. There was a statistically significant correlation between prevalence of post-liver transplant erythrocytosis and etiology of liver transplantation ( $p < 0.05$ ). Moreover, there was a statistically significant correlation between the incidence of post-liver transplant erythrocytosis and age and BMI of recipients ( $p < 0.05$ ). No cardiovascular events were reported following erythrocytosis.



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# Conclusion

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- In this study, we found that erythrocytosis is a complication that occurs in approximately 2.5% of patients, on average, around 2 years after liver transplantation. The pathogenesis of erythrocytosis remains poorly understood, but several factors seem to influence its development. These factors include the etiology of liver transplantation, with cryptogenic cirrhosis showing a higher probability of erythrocytosis, male gender, higher pre-transplant hemoglobin levels, lower post-transplant blood erythropoietin levels, lower body mass index, and the use of tacrolimus as an immunosuppressive drug.
- The higher occurrence of erythrocytosis in younger individuals, particularly in males, and its association with cryptogenic cirrhosis suggest a possible influence of androgenic and anabolic hormones. Additionally, the role of hematopoietic stem cells in the liver and post-transplant hematopoiesis, stimulated by hormonal changes during youth and immunosuppressive drugs, may contribute to the development of erythrocytosis.
- Further research is needed to gain a better understanding of the precise pathogenesis of erythrocytosis after liver transplantation. Regular monitoring of patients with erythrocytosis, especially those at higher risk, should be considered due to the increased risk of thrombotic complications.



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