Hyperdynamic circulation in liver cirrhosis: desensitization of vasoconstrictive receptors by G protein-coupled receptor kinases

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Liver cirrhosis is complicated by a hyperdynamic circulation characterized by a generalized arterial vasodilatation. This vasodilatation occurs despite high plasma concentration of several potent vasoconstrictive substances like angiotensin, vasopressin, endothelin and norepinephrine. The experimental evidence available shows that compensatory adrenergic and vasoconstrictive signals are not normally transmitted intracellularly. G protein-coupled receptor kinases phosphorylate plasma membrane receptors and block the transmission of the signal intracellularly. We hypothesize that these kinases are responsible for the desensitization to vasoconstrictors observed in patients with liver cirrhosis. Pharmacological intervention at this level might be beneficial to treat complications like ascites and variceal bleeding.

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