

雷公藤及其活性成分在肾病综合征中的药理作用及减毒机制研究进展^Δ

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摘要 肾病综合征(NS)是以大量蛋白尿、低蛋白血症、水肿及高脂血症为核心临床特征的肾小球疾病。雷公藤在肾脏疾病的防治中具有显著疗效,但其肝毒性、肾毒性等限制了临床应用。本文系统综述雷公藤及其活性成分在NS治疗中的药理作用及减毒机制。结果发现,雷公藤及其活性成分(包括雷公藤多苷、雷公藤甲素、雷公藤三醇等)可通过保护肾小球足细胞、修复肾小球滤过屏障、调控机体异常免疫炎症反应、抑制氧化应激损伤及阻滞肾纤维化等多种途径,有效降低机体蛋白尿水平、改善肾功能、减少病情复发,发挥显著的肾脏保护作用。依托中药配伍(如雷公藤分别与金钱草、菟丝子醇提取物、白芍配伍)调控机体抗炎抗氧化水平、优化药物代谢通路并结合现代制剂改造(如雷公藤甲素自微乳给药体系),可有效拮抗雷公藤肝毒性、肾毒性等。
关键词 雷公藤;活性成分;肾病综合征;药理机制;减毒机制

Research progress on the mechanisms of pharmacological effects and detoxification of *Tripterygium wilfordii* and its active ingredients in nephrotic syndrome

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ABSTRACT Nephrotic syndrome (NS) is a glomerular disease characterized by massive proteinuria, hypoalbuminemia, edema, and hyperlipidemia. *Tripterygium wilfordii* exhibits remarkable efficacy in the prevention and treatment of renal diseases; however, its hepatotoxicity, nephrotoxicity, and other factors limit its clinical application. This article systematically reviews the mechanisms of pharmacological effects and detoxification of *T. wilfordii* and its active ingredients in the treatment of NS. The results show that the main active components of *T. wilfordii* include tripterygium glycosides, triptolide, and triptiride, etc. *T. wilfordii* and its active ingredients exert significant renal protective effects by protecting glomerular podocytes, repairing the glomerular filtration barrier, regulating abnormal immune and inflammatory responses, inhibiting oxidative stress injury, and blocking renal fibrosis, thereby effectively reducing proteinuria, improving renal function, and lowering the recurrence rate of NS. Traditional Chinese medicine compatibility (e.g. *T. wilfordii* combined with *Lysimachia christinae*, *Cuscuta chinensis* ethanol extract, and *Paeonia lactiflora*, respectively) can regulate anti-inflammatory and antioxidant levels and optimize drug metabolic pathways. Combined with modern preparation technologies (e.g., triptolide self-microemulsion drug delivery system), these strategies can effectively antagonize the hepatotoxicity, nephrotoxicity, and other factors of *T. wilfordii*.

KEYWORDS *Tripterygium wilfordii*; active ingredients; nephrotic syndrome; pharmacological mechanism; detoxification mechanism

肾病综合征(nephrotic syndrome, NS)是一种由肾小球滤过屏障受损引起的临床综合征,典型表现为大量蛋白尿、低蛋白血症、水肿和高脂血症^[1]。其病因可分为

原发性(如微小病变型肾病、膜性肾病等)、继发性(如糖尿病肾病、狼疮性肾炎等)和遗传性(如先天性NS、薄基底膜肾病等),核心发病机制涉及足细胞损伤与异常的炎症反应^[2]。NS病程迁延、治疗周期漫长,部分患者在治疗过程中易出现激素依赖、频繁复发或激素抵抗,需长期接受大剂量糖皮质激素治疗,致使药物在体内蓄积,诱发多重不良反应,既损伤机体生理功能,也严重影响心理健康,大幅降低其生活质量^[3]。近年来,中医药凭借其多组分、多靶点、多通路的协同调控特性,在NS治

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