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Leber遗传性视神经病变研究进展和挑战

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- 摘要
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摘要 Leber遗传性视神经病变(Leber hereditary optic neuropathy, LHON; MIM535000)是最典型的线粒体遗传病之一, 主要由线粒体DNA (Mitochondrial DNA, mtDNA)3个原发突变(Primary mutation, m.11778G>A、m.3460G> A 和m.14484T>C)引起。患者表现为无痛性双侧视力下降或丧失, 主要易感人群为青壮年男性。不完全外显(Incomplete penetrance)和性别偏好(Gender bias)是该病亟待解决的两大难题, 目前尚无有效的预防及治疗措施。文章对近年来LHON 的分子发病机制、临床症状及特点、体外实验和动物模型研究、预防及治疗等方面的研究进展进行综述, 并集中介绍了我们近期对于我国LHON患者的研究结果。

关键词： LHON 线粒体DNA 核基因 功能验证

Abstract： Leber hereditary optic neuropathy (LHON; MIM 535000) is one of the most common mitochondrial diseases, with a clinical manifestation of painless, acute or sub-acute bilateral visual loss in young adults leading to blindness and central scotoma. Over 95% of LHON patients were caused by one of three primary mtDNA mutations (m.11778G>A, m.3460G>A and m.14484T>C). Incomplete penetrance and gender bias are two riddles of this disease. Here we summarized recent research progress of LHON, with a focus on the molecular pathogenic mechanisms, clinical features, in vitro experiments and animal models, and prevention and treatment of LHON. In particular, we presented the main findings and challenges in our recent efforts to decipher genetic susceptibility and mechanism of LHON in Chinese patients.

Keywords： LHON, mtDNA, nuclear genes, functional assay

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