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银杏叶提取物对AFB1所致大鼠肝癌基因P16lnk4a mRNA及蛋白表达的影响

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Effects of Ginkgo Biloba Extract on the Expression of P16lnk4a mRNA and Protein During Aflatoxin B1-induced Hepatocarcinogenesis in Wistar Rats

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摘要

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摘要 动态观察银杏叶提取物 (ginkgo biloba extract, EGb761) 在抑制黄曲霉毒素B1 (AFB1) 诱发大鼠肝癌过程中对肝组织相关基因P16lnk4a mRNA表达水平的影响, 进一步从分子生物学水平揭示银杏叶提取物抗癌的机制及其效果。方法: 将70只4周龄Wistar雄性大鼠随机分为3组: AFB1组 (25只), AFB1+ EGb761组 (25只) 及对照组 (20只)。在诱发肝癌过程中, 分别于第13、33及53周对大鼠进行肝组织活检; 至第73周处死全部动物取肝组织。应用实时荧光定量PCR和Western blot技术动态检测肝组织中P16lnk4a mRNA及相应蛋白的表达情况。结果: AFB1组原发性肝癌发生率为58.8% (10/17); AFB1+EGb761组为29.4% (5/17); 对照组为0 (0/16)。AFB1+ EGb761组肝癌发生率显著低于AFB1组 (P<0.05)。AFB1+EGb761组的肝组织P16lnk4a mRNA及相应蛋白表达水平在第53周及第73周时均明显高于AFB1组, 差异有统计学意义 (P<0.05)。结论: 银杏叶提取物 (EGb761) 具有抑制AFB1致大鼠肝癌的作用。其机制可能与调控肝细胞抑癌基因P16lnk4a mRNA表达水平有关。

关键词: 黄曲霉毒素B1 肝细胞肝癌 银杏叶提取物 P16lnk4a

Abstract: To investigate the effects of Ginkgo biloba extract (EGb761) on the expression of P16lnk4a mRNA, as well as the related protein during aflatoxinB1 (AFB1) - induced hepatocarcinogenesis in Wistar rats. Methods: A total of 70 Wistar rats were randomly divided into three groups, namely, AFB1 (25 rats), AFB1 + EGb761 (25 rats), and control (20 rats). During hepatocarcinogenesis, liver biopsies were performed on all animals on the 13th, 33rd, and 53rd weeks of the experiment. The animals were sacrificed on the 73rd week and liver tissues were collected. P16lnk4a mRNA expression in hepatocyte was detected by real-time PCR. The relative protein expression in liver tissue was observed by Western blot analysis. Results: The rate of hepatocellular carcinoma was 58.8% (10 / 17) in the AFB1 group, 29.4% (5 / 17) in the AFB1 + EGb761 group, and 0.0% (0 / 16) in the control group. The hepatocellular carcinoma incidence was significantly lower in the AFB1 + EGb761 group than in the AFB1 group (P < 0.05). The expression of P16lnk4a mRNA and the relative protein expression were both significantly higher in the AFB1 + EGb761 group than in the AFB1 group on the 53rd and 73rd weeks of the experiment (P < 0.05). Conclusion: Ginkgo biloba extract EGb761 can effectively inhibit the occurrence of liver cancer induced by AFB1. The mechanism of treatment may be related to the regulation of p16lnk4a mRNA expression.

Key words: Aflatoxin B1 Hepatocellular carcinoma Ginkgo biloba extract P16lnk4a

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