不同植物多酚物質對動脈粥狀硬化的影響

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大綱

一、前言

二、在 THP-1 細胞模型中安石榴苷調節與動脈粥樣硬化相關的關鍵過程

三、白藜蘆醇改善高脂飲食和 LPS 誘導的 $ApoE^{-/-}$小鼠動脈粥狀硬化，並通過調節 Dnmt 的表達抑制 $CD4^{+}$ T 細胞的激活

四、漆黃素調節 $ApoE^{-/-}$小鼠中的 PCSK9 和 LOX-1 來改善動脈粥狀硬化

五、結論

摘要

動脈粥狀硬化(Atherosclerosis, AS)是一種慢性的發炎疾病。粥狀動脈硬化誘發心血管疾病，例如冠心病及腦梗塞，可能導致發病的原因：血脂異常，脂肪酸和脂質堆積在中大型動脈中形成斑塊聚集，隨著斑塊增加可能導致血管破裂造成壞死的細胞碎片大量流入血管中，造成心肌梗塞或中風；免疫細胞發炎，血中過多的低密度膽固醇(LDL)會穿過血管內皮細胞形成氧化型 LDL，氧化型 LDL 會造成內皮功能障礙，巨噬細胞泡沫化和凝集素型低密度脂蛋白受體(LOX-1)激活，促成斑塊形成。本次報告的目的在探討不同植物來源的多酚物質對改善動脈粥狀硬化的效果及機制。實驗方法為利用 IFN-γ 誘導的 THP-1 檢測安石榴苷對巨噬細胞的影響；使用 LPS 誘導 $ApoE^{-/-}$小鼠分成對照組、白藜蘆醇組與辛伐他汀組餵食 20 周，觀察其血液中脂質、粥狀斑塊含量；以高脂飲食餵食 $ApoE^{-/-}$小鼠並加入漆黃素或阿洛伐他汀餵食 12 周，觀察其血液中膽固醇等各項指標及血管切片。實驗結果表示，安石榴苷可以降低單核球遷移率並增加細胞中膽固醇流出率；白藜蘆醇可以減少血管壁上脂質蓄積、抑制 $CD4^{+}$T 細胞的增值與活化、調節細胞因子的分泌；漆黃素減少血管壁上脂質蓄積，且相較於高脂飲食組其血管壁上膠原蛋白纖維成分有增加且均勻分散。綜上所述，安石榴苷、白藜蘆醇及漆黃素具有改善動脈粥狀硬化的功效。

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