飲食成分對乙醯氨酚引致的肝損傷及人類肝腫瘤細胞株影響的研究

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摘 要

本研究第一部分探討了組氨酸和肌?對於乙醯氨酚引致的肝損傷的Balb/cA小鼠的保護作用。組氨酸或肌?，分別以 0.5、1 或2 g/L的濃度被加入飲用水中4週。小鼠的急性肝損傷是以腹腔內注射乙醯氨酚來產生。研究結果發現，乙醯氨酚的處理顯著減少肝臟中的穀胱甘?以及抗壞血酸的水平，顯著增加肝臟中的丙二醛(malonyldialdehyde, MDA) 水平、活性氧物質(ROS)、氧化型穀胱甘?(GSSG)，並且顯著減少肝臟中的穀胱甘?過氧化?(GPX)、過氧化氫? (CAT)、以及超氧化物歧化?(SOD)的活性($P < 0.05$)。然而，預先攝食組氨酸或肌?能顯著減少乙醯氨酚引致的氧化壓力。其機轉是透過增加GSH，減少MDA、ROS和GSSG的形成，以及維持肝臟中GPX、CAT和SOD活性($P < 0.05$)。乙醯氨酚的處理能增加肝臟中的IL-6、 IL-10、TNF-α，以及單核細胞趨化蛋白-1 (MCP-1) ($P < 0.05$)。預先攝食組氨酸或肌?能顯著降低乙醯氨酚引致的cytokines增加($P < 0.05$)。然而，齊墩果酸和熊果酸只有在4 μmol/ L和8 μmol/ L時能顯著降低Huh7細胞株的細胞存活，以及增加DNA fragmentation ($P < 0.05$)。齊墩果酸或熊果酸處理顯著降低HepG2、Hep3B和HA22T細胞株的粒線體膜電位，而且呈現concentration-dependent 的趨勢 ($P < 0.05$)。齊墩果酸和熊果酸的處理顯著降低HepG2、Hep3B、HA22T、以及Huh7肝癌細胞株的Na+-K+-ATPase活性以及VEGF的水平，而且呈現concentration-dependent 的趨勢($P < 0.05$)。齊墩果酸和熊果酸能顯著增加HepG2、Hep3B和HA22T細胞株的caspase-3和 capase-8的活性，而且呈現concentration-dependent 的趨勢($P < 0.05$)。另外，齊墩果酸和熊果酸能顯著減少HepG2、Hep3B、以及Huh7細胞株的細胞粘附以及ICAM-1的水平，而且呈現concentration-dependent 的趨勢($P < 0.05$)。這一部分的研究顯示齊墩果酸和熊果酸有強效的抗癌效果，能夠造成肝癌細胞株的凋亡。

關鍵詞 : 組氨酸、肌?、乙醯氨酚、肝損傷、齊墩果酸、熊果酸、凋亡、肝腫瘤

目錄

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