# 補充抗氧化維生素 C 及 E 對慢性阻塞性肺疾病患者體內抗氧化狀況的影響

# The Effect of Vitamin C & E Supplement on the Antioxidative Status in Patients with Chronic Obstructive Pulmonary Disease

## 中文摘要

慢性阻塞性肺疾病(COPD)是一種慢性氣道阻塞的病症。根據文獻報告，下呼吸道氧化物與抗氧化物失衡可能是導致 COPD 的主因，由發炎細胞和抽菸所產生的氧化物，可能會造成細支氣管緊縮、纖維化、變窄，並直接傷害肺泡壁，降低肺功能。本研究的目的在探討補充抗氧化維生素 C 或/和 E 後對慢性阻塞性肺疾病患者體內抗氧化狀況的影響。受試者爲 42 個男性的慢性阻塞性肺疾病門診患者，以一秒量(FEV1) < 70%及一秒率(FEV1/FVC) < 75%爲收案的依據。實驗採隨機平行、雙盲試驗方式進行，將其分爲四組，分別補充安慰劑、維生素 E (400 IU/day)、維生素 C (500 mg/day)、及維生素 C+E，爲期 13 週。研究結果如下：補充抗氧化維生素 C 及 C＋E 會顯著的降低血漿中總膽固醇的濃度($p < 0.05$)，補充維生素 C 可顯著的降低血漿中高密度脂蛋白膽固醇及脂質過氧化物 isoprostanes 的濃度($p < 0.05$)。除此之外，補充抗氧化維生素後有以下的趨勢：即補充維生素 E 及 C＋E 後有降低超氧化物岐化酉每 (SOD)活性的情形，補充維生素 C 或/和 E 後有降低麩胱甘月太 過氧化酉每 (GSH-Px)的活性、降低脂質過氧化物丙二醛(MDA)的值、延長低密度脂蛋白氧化延遲時間和增加總捕捉自由基能力的趨勢。本研究已顯現補充抗氧化維生素後對 COPD 患者抗氧化狀況的正面改善趨勢，所以很值得以本研究爲基礎，做再更深入的研究，探討其相關性，將有利於此疾病的防患與治療。

## 英文摘要

Chronic obstructive pulmonary disease (COPD) is an obstructive airway disorder. An imbalance between oxidants and antioxidants has been proposed in the pathogenesis of COPD. No matter the source of oxidant, such as the inhaled from smoking or generated from leucocytes, it not only makes bronchiolar constriction, fibrosis, and narrowing, but also hurt lung cell wall and decline lung function. The aim of the study was to investigate the effect of antioxidant vitamin C & E supplement on the antioxidative status in COPD patients. Forty-two male COPD outpatients were double-blinded, randomly divided into four groups supplement with placebo or vitamin E (400 IU/day) or vitamin C (500 mg/day) or vitamin C+E daily for 13 weeks. The antioxidative status of COPD patients was evaluated. Results showed after supplementation with vitamin C and C+E significantly lowering plasma total cholesterol concentration ($p < 0.05$). Supplementation with vitamin C result in statistically significantly lowering high density lipoprotein cholesterol and attenuation of plasma isoprostanes -- the product of lipid peroxidation ($p < 0.05$). More than these, patients had the trend to reduce antioxidative enzymes activity and plasma malondialdehyde, to prolong the lag-time of LDL oxidation and to increase total radical trapping antioxidant parameter after 13-week supplementation. Therefore, supplement with antioxidant vitamins may play a role in reduce the oxidative stress of COPD patients.