碳酸鈣與乳酸鈣補充劑之鈣質生物利用效性

Calcium Bioavailability of Calcium Carbonate and Calcium Lactate Supplements

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摘要

研究發現飲食中鈣的攝取量和預防骨質疏鬆症間有相當大的關連性，根據台灣全國營養狀況調查結果顯示國人鈣的攝取量明顯的比建議攝取量低，尤其是青春期和成年女性。本研究的主要目的在於探討不同鈣片對鈣的生物利用之差異，選擇市售兩種常見的鈣片補充劑：碳酸鈣和乳酸鈣。以 38 位健康的成年受試者隨機服用含 900 毫克鈣質的這兩種鈣片補充劑，服用前禁食 12 小時，於服用後 0、1、2、3、4、5 小時抽血，分析血清鈣質和血清副甲狀腺素含量，而在服用後 0、2、4、5 小時收集尿液，測量尿鈣、尿肌酸酐總量。結果發現服用兩種鈣片後都可以使血清鈣上升，降低血清副甲狀腺素含量、以及增加尿鈣／尿肌酸酐比值。然而，比較這兩種鈣片的差異性，發現乳酸鈣對血清鈣質的上升速率較快，因此本研究的結論是補充 900 毫克的乳酸鈣比碳酸鈣有較高的鈣質的生物利用效性，可以較有效的預防骨質疏鬆症。

Abstract

Calcium intake for the primary prevention of osteoporosis has received much attention. According to the Nutrition and Health Survey in Taiwan, teenage and adult women consume considerably less than the current Recommended Daily Nutrient Allowance (RDNA) of calcium. The purpose of this study was to investigate the calcium bioavailability of calcium carbonate and calcium lactate, two common forms of calcium supplementation. Thirty-eight healthy adults randomly received 900 mg of one of two calcium supplements. Subjects fasted for more than 12 h before taking the calcium supplements. Blood and urine were collected for analysis of serum calcium, serum parathyroid hormone (PTH) at 0, 1, 2, 4, and 5 h, urine calcium at 0, 2, 4 and 5 h, and 24-h urine for creatinine. Results showed that both calcium supplements could increase serum calcium and the urine Ca/creatinine ratio and decrease serum PTH. However, calcium lactate had a faster absorption rate in increasing serum calcium. We concluded that 900-mg calcium supplementation with calcium lactate had higher calcium bioavailabilty compared with calcium carbonate and may produce a greater benefit for the prevention of osteoporosis.