II 期乳癌患者手術後接受輔助性化學和放射治療對血中銅鋅狀態之影響

Effects of Post-operative Adjuvant Chemotherapy and Radiotherapy on Serum Copper and Zinc Status in Stage II Breast Cancer Patients

中文摘要

台灣地區女性乳癌發生率有逐年增高的趨勢，依民國九十一年衛生署之癌症死因統計資料顯示，女性乳癌已位居癌症死亡原因第四位。所以，本研究主要在探討 18 位經外科手術後之女性第 II 期乳癌患者，於接受輔助性化學和放射治療後血中銅、鋅、銅/鋅比值與紅血球 SOD 的變化，以及患者飲食攝取情形與體重的變化，以了解飲食、化學和放射治療是否影響患者體內微量元素之營養狀態，以作爲日後臨床治療之適當營養支持的參考。結果顯示，化學和放射治療前後乳癌患者血中銅、鋅、銅/鋅比值和紅血球 SOD 無顯著差異。於治療期間銅鋅比值雖無統計差異、但彼此間呈統計正相關的趨勢。飲食中鋅與蛋白質的攝取量與血中銅、鋅濃度無統計相關。化學和放射治療開始後，每日熱量攝取量顯著提高 300~100 kcal/d，且患者體重呈現上昇趨勢， ，但與治療前無明顯差異。三大營養素的攝取百分比皆在正常的範圍內。蛋白質的攝取量在化學和放射治療開始後，由 1.17 g/kg BW 提高至 1.39 g/kg BW，但治療前後亦無明顯差異。鋅的攝取量在治療期間較治療前高，治療前後無明顯差異，但皆低於 RDNA 之建議量。總而言之，手術後第 II 期乳癌患者接受輔助性化學和放射治療時，若攝取均衡且符合銅鋅建議量的飲食，則其血中銅、鋅、銅/鋅比值和紅血球 SOD 治療前後皆無顯著差異。

關鍵詞：乳癌、化學治療、放射治療、銅、鋅，SOD

英文摘要

In Taiwan, the incidence rate of female breast cancer has been increasing gradually every year, and has been the 4th leading cause of cancer death. This study was aimed to explore the effect of postoperative adjuvant chemotherapy (C/T) and radiotherapy (R/T) on serum copper, zinc, Cu/Zn ratio and RBC-SOD in female breast cancer patients. In the meantime, we analyzed the dietary intake and body weight change to understand whether the serum trace elements status of the patients were influenced by diet, C/T, or R/T. Results obtained from this study may provide some information for adequate nutrition support in clinical practice in the future. The results showed that serum copper, zinc, Cu/Zn ratio and RBC-SOD were not significantly different before and after C/T and R/T treatment in patients. During postoperative treatment, Cu/Zn ratio did not show significant difference, but a significantly positive correlation trend

between several measurement was noted. Dietary zinc and protein intake did not significantly correlated with serum copper and zinc status. Calorie intake increased 300-100 Kcal/d and body weight showed an elevated trend with 3% increase after the postoperative treatment started, however, there were no obvious changes than before. The percentage of macronutrients intake were in normal ranges. Protein intake increased from 1.17 g/ kg BW to 1.39 g/kg BW when postoperative treatment began, and zinc intake was higher during treatment period, but showed no significant difference. The level of zinc intake was below RDNA before and after treatment. In conclusion, postoperative adjuvant chemotherapy and radiotherapy did not affect serum copper , zinc, Cu/Zn ratio and RBC-SOD in stage II breast cancer patients who take balance diet containing adequate amount of copper and zinc.
Keywords: breast cancer, chemotherapy, radiotherapy, Cu, Zn, SOD