

The effect of calcium supplementation on calcium metabolism in postmenopausal women

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Abstrak

During three months, August 1991 until November 1991, the randomized clinical trial study was conducted to elucidate the effect of calcium supplementation on calcium metabolism to prevent bone loss in postmenopausal women. Thirty four postmenopausal women age 55 to 65 years old from RN. 01, Panjunan village, Astanaanyar subdistrict, Bandung regency West Java who had undergone menopause at least five years since last menses were recruited to the study. The subjects were randomly assigned to the treatment (1000 mg calcium/day) and the control groups in a double blind design.

Thirty one subjects who remained in the study consist of sixteen treatment subjects and fifteen control subjects were included in the final data analysis. Baseline data of the study showed no significant difference for all variables, therefore baseline data were homogenous. Based on two x 24 hours dietary recall methods all subjects had low dietary calcium intake (291.51 mg/day and 289.32 mg/day).

After treatment, based on the laboratory tests show that the serum calcium concentration was significantly increased in the treatment group ($p < 0.001$) and was not significant difference ($p = 0.596$) in the control group. Serum calcium was a significant difference ($p < 0.001$) between the treatment and the control group. Parathyroid hormone level was significantly decreased in the treatment group ($p < 0.05$) and was significantly increased in the control group ($p < 0.01$). There was significant difference ($p < 0.001$) between the treatment and the control group. Bone loss of radius and ulna were determined by z-ray standard measurement were significantly reduced ($p < 0.001$ and $p < 0.01$, respectively) after 1000 mg calcium supplementation. Alkaline phosphatase was significantly decreased ($p < 0.001$) in the treatment group and was significantly increased in the control group. There was significant difference ($p < 0.001$) between the treatment and the control group. Urinary calcium creatinine ratio was not significantly increased ($p = 0.764$ and $p = 0.067$) and was not significant difference ($p = 0.067$) in all subjects after treatment. This study support the hypothesis that calcium supplementation can maintain calcium balance, even improved bone density in postmenopausal women.