

Health-Care Center

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General Summary

Shimbashi Medical Checkup Office

The serum level of alkaline phosphatase (ALP) is a basic test variable adopted by the Japan Society of Ningen Dock. ALP varies depending on age, sex, blood group, and menstrual status, but the extent of its variation depending on these factors has not been fully clarified. Our study was aimed at evaluating the effects of age, sex, blood group, and menstrual status on ALP.

Research Activities

Shimbashi Medical Checkup Office

ALP is used as an indicator of hepatic and biliary tract disorders. The present study was designed to evaluate the effects of age, sex, blood group, and menstrual status on ALP.

1. Age and sex: A total of 4,263 subjects (2,835 men and 1,428 women) aged 40 to 59 years were studied. These subjects were free of hepatopathy, hepatitis B or hepatitis C virus infection, and nephropathy. Subjects who affirmed on a questionnaire that they had bone disease or thyroid disease or were pregnant were excluded from the study. The subjects were divided into 4 age groups to analyze intergroup differences: group 1 (40-44 years), group 2 (45-49 years), group 3 (50-54 years), and group 4 (55-59 years). Among men, the ALP levels were 195, 198, 198, and 196 U/L in groups 1, 2, 3, and 4, respectively, and showed no age-related changes. Among women, the ALP levels increased with age and were 153, 164, 195, and 226 U/L in groups 1, 2, 3, and 4, respectively. The ALP level at age 40 to 54 years was lower for women than for men, whereas the ALP level at age 55 to 59 years was higher for women than for men.

2. Blood group and menstrual status: Of the women mentioned above, 389 aged 45 to 54 years receiving gynecologic examinations were studied. Women aged 45 to 54 years were divided on the basis of blood group. Each group was subdivided on the basis of menstrual status: premenopause group (mean age, 50 years), less than 3-year menopause group (less than 3 years after menopause), and more than 3-year menopause group (more than 3 years after menopause). The ALP levels in the premenopause group, the less than 3-year menopause group, and the more than 3-year menopause group were 151, 209, and 261 U/L among women with blood type A; 165, 204, and 207 U/L among women with blood type B; 142, 245, and 232 U/L among women with blood type AB female; and 180, 201, and 234 U/L among women with blood group O, respectively. Thus, the ALP level was higher in the less than 3-year menopause group than in the premenopause group among women with each blood type other than type O, and the ALP level was higher in

the more than 3-year menopause group than in the premenopause group among women with each blood type. Next, differences in ALP levels according to blood type were analyzed in each menstrual status group. In the premenopause group, the ALP levels were 151, 165, 142, and 180 U/L for women with blood types A, B, AB, and O, respectively, indicating a higher ALP level in women with blood type O than in women with blood type A or AB. In the less than 3-year menopause group, the ALP levels were 209, 204, 245, and 201 U/L for women with blood type A, B, AB, or O. In the more than 3-year menopause group, the ALP levels were 261, 207, 232, and 234 U/L, respectively. Thus, the ALP level before menopause was higher in women with blood type O than in women with blood type A or AB, but such differences in the ALP level among blood types were absent after menopause. The results can be summarized as follows.

- 1) The ALP level in men did not change with age. The ALP level in women was lower than that in men at age 40 to 54 years but increased sharply after age 50 years and was higher than that in men at age 55 to 59 years.
- 2) The ALP level in women less than 3 years after menopause (excluding women with blood type O) and women more than 3 years after menopause was lower than that in women before menopause, suggesting an association of menopause with the ALP level.
- 3) Before menopause, the ALP level was higher in women with blood type O than in women with blood type A or AB. After menopause there was no difference in the ALP level depending on blood type.

Publications

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