8898 P

Effect of Vitamin C Administration on Vitamin C of Milk and Urine of Lactating Mothers.

FU-TANG CHU AND CHIEH SUNG.

From the Division of Pediatrics, Peiping Union Medical College, Peiping, China.

The relation of the vitamin C intake and the urinary excretion of the vitamin has been recently studied by a number of observers.[1-4] But little could be found in the literature regarding the effect of the diet on the vitamin C content of human milk. It is generally agreed that human milk is richer in the antiscorbutic vitamin than cow's milk and that the clinical manifestation of scurvy is very rare in breast-fed infants. In the case of cow's milk its vitamin C content is said to remain quite constant in different seasons despite the changes in the diet of the cow.[1] One may ask whether the human milk constantly provides an optimal amount of vitamin C regardless of the dietary supply of the same.

The present report is based upon the result of simultaneous determinations of vitamin C in the milk and urine of 2 lactating mothers for 26 and 27 consecutive days respectively. Their diet was adequate in the caloric intake but very low in vitamin C and consisted of food articles which were usually taken in the Chinese families of lower class. The diet was kept constant throughout except for a short period beginning on the fifth day of the study in which large doses of additional vitamin C substance were given. In case 1, the additional vitamin C consisted of 1000 cc. of canned orange juice ("Absopure") daily for 12 days; while in case 2, 600 mg. of ascorbic acid crystal (Schering-Kahlbaum) were given daily for 8 days. A total amount of 3500 cc. of fluids was allowed daily in each case. For the titration of vitamin C, the technique of Harris and Ray[3] was followed closely. The output of vitamin C in 24-hour milk and in 24-hour urine was calculated and compared from day to day.

It was found that a sudden increase in the urinary excretion of vitamin C did not happen until the large dose of vitamin C substance had been given for 6 days in case 1 and for 3 days in case 2, showing that the storage of vitamin C in the tissue of these mothers

1 Harris, L. J., Ray, S. N., and Ward, A., *Biochem. J.*, 1933, **27**, 2011.

2 Johnson, S. W., and Zilva, S. S., *Biochem. J.*, 1934, **28**, 1393.

3 Harris, L. J., and Ray, S. N., *Lancet*, 1935, **1**, 71.

4 Youmans, J. B., Corlette, M. B., Akeroyd, J. H., and Frank, H., *Am. J. Med. Sci.*, 1936, **191**, 319.

was very low at the beginning of the experiment. Once the peak was reached the daily urinary output of the vitamin C tended to be fairly constant which amounted to about 60% of the intake. The excretion dropped abruptly with the discontinuance of the added vitamin in the diet.

Following the increase or decrease of vitamin C supply in the diet there was a corresponding fluctuation in the vitamin C content of milk, but the change was very slow and steady, being entirely different from the type of response in the urinary excretion. Milk, being a product of secretion rather than excretion, seemed to behave like the body tissue in this respect. After it had reached a "saturation" level which was around 0.08 mg. per cc. the concentration of vitamin C in the milk remained quite high for about 10 days even after the extra supply of the vitamin was discontinued.

8899 C

Effects of Acetyl Salicylic Acid on the General Condition and Blood Cells of Rats.

CHARLES J. ROBINSON, MILDRED ELLIS AND DOUGLAS WARNER.
(Introduced by C. H. Thienes.)

From the Department of Chemistry, Pomona College, and the Warner Laboratory, Claremont, California.

Published facts and opinions[1] regarding the low toxicity and safety of acetyl salicylic acid (aspirin) do not preclude the possibility that long continued daily use of this drug might be productive of bad results. This preliminary investigation, using white rats as subjects, was undertaken to test this possibility. The results were mainly negative.

Table I summarizes the results of administration of the drug to 33 young animals, 7 other animals constituting a control group. Weighed doses of acetyl salicylic acid were mixed with small portions of the standard mixed ration, and care was taken to assure that the entire dose was consumed each day. As compared with the control animals, the experimental animals were found to be normal in general physical condition, growth curves, appetite, activity, coat condition, and appearance of eyes, ears, tail and feces. Since doses of

[1] See esp. Editorial, *Lancet*, 1935, **229**, 619; Lowry, Otto, *Canadian Med. Assn. J.*, 1934, **31**, 638; Stiell, W. Fletcher, *Prac. London*, 1917, **99**, 293; Macht, David I., *Med. Record*, 1918, **94**, 767.