brief communications

Serum vitamin E levels in children and adults with tropical sprue in Puerto Rico1, 2

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In a previously published paper (1), we recommended the laboratory criteria that could be used for the diagnosis of tropical sprue in Puerto Rico. Included were 1) serum vitamin B12 levels, for which when using Lactobacillus leichmannii as the test organism, normal values are over 150 pg/ml; 2) serum folate levels, measured with Lactobacillus casei, give normal values over 5 ng/ml; 3) whole blood folates, in which normal subjects have values over 100 ng/ml; and 4) a 5-g xylose absorption test, during which healthy adults excrete over 1.2 g (2) and normal children over 1.0 g in 5 hr (3). All these tests, together with a jejunal biopsy, were the laboratory criteria recommended for the diagnosis of tropical sprue in Puerto Rican adults.

After the study on adults, we decided to do the same work with children who had tropical sprue and whose ages were between 5 and 12 years. For this study we used 14 children of both sexes.

We performed the same tests and obtained values comparable to the ones reported for adults. Serum folate levels averaged 3.0 ± 1.4 ng/ml; whole blood folates, 74 ± 27 ng/ml; serum vitamin B12 determinations, 85 ± 37 pg/ml; and the xylose excretion was 0.51 ± 0.20 g in 5 hr. All the jejunal biopsies were abnormal.

However, we thought that it was most important to include a fat-soluble vitamin determination in serum and decided to measure vitamin E levels in the sera of both groups of patients, using Martinek's (4) method. We modified the method by reading all samples including the reagent blank against water and then subtracting the reading of all reagent blank from the reading of every sample.

In the control group, we had 70 normal adults who had serum vitamin E levels between 0.40 and 1.61 with an average of 0.81 ± 0.30 mg/100 ml, and 13 children whose range was between 0.50 and 1.10 and an average of 0.73 ± 0.15 mg/100 ml, which shows there was no significant difference between vitamin E levels of healthy Puerto Rican children and adults.

When we measured the vitamin E levels in the 14 children and 16 adults with tropical sprue, we found them to be 0.28 ± 0.13 mg/100 ml and 0.29 ± 0.16 mg/100 ml, respectively, which are approximately one-third the values obtained in normal individuals. Therefore, serum vitamin E levels together with the other tests already mentioned can be used as an additional criterion in the diagnosis of tropical sprue in adults and children in Puerto Rico.

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References

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