TRANSAMINASES AND ASCORBIC ACID LEVELS IN BLOOD IN VITILIGO

By

ARMAND VELOU* and SANTHANA GOPALAN T.**

In an earlier communication,[1] it has been observed that the study of serum transaminase (SGOT) and glutamic pyruvic transaminase (SGPT) has been quite useful in vitiligo, where usual routine liver function tests as Vanden Bergh, Thymol Turbidity Tests had given normal results. Since Ascorbic Acid is intimately connected with the pigment formation and pigmentary disorders of the skin, this study was taken up to find out the levels of Ascorbic Acid in blood in vitiligo and whether there is any correlation between the levels of transaminases and Ascorbic Acid in blood in this disease.

METHOD AND MATERIAL

The enzymes, glutamic oxalacetic transaminase and glutamic pyruvic transaminase were estimated in the serum by the method of Reitman and Frankel[2] and results were expressed as colorimetric units. The colorimetric unit is defined as the activity by 1 ml. of serum that results in the formation of a chromogenic material equivalent to one microgram per ml, of pyruvic acid under the conditions of the test.

The estimation of Ascorbic acid in whole blood was done by the method of Roe ann Kuether[3] which involves the direct colorimetric determination of total Ascorbic Acid (reduced and oxidised forms).

As controls 15 normal persons between the ages of 18 to 50 years, apparently not suffering from any disease were selected.

For Vitiligo patients, 38 persons who visited the Outpatient Department of the Dermatology Section of the General Hospital, Pondicherry to seek advice were chosen. Of these 20 were men and 18 women. Their ages varied from 15 to 50 years. The patients belonged to the low income socioeconomic group. Their general condition was good. The liver was not palpable and they did not suffer from any other disease which might cause elevated transaminase values. As regards the distribution of depigmented lesions, it may be pointed out that 35% cases had single lesion, while the remaining cases had on an average three lesions in different locations. The commonest sites of lesions were the extremities in 40% cases and mucous membranes in 35% cases.

RESULTS AND DISCUSSION

The values obtained for 15 normal cases were 27 ± 10 units per ml. for SGOT and $11 + 4$ units per ml. for SGPT and 0.73 ± 0.26 mgm% for Ascorbic Acid (Table I). The usual routine liver function tests were done for vitiligo patients along with transaminase and Ascorbic Acid determinations. The routine liver function

* Reader in Dermatology and Venereal Diseases, Medical College, Pondicherry.

** Biochemist, General Hospital, Pondicherry.

tests were normal except in one case where Thymol turbidity test was slightly raised. (Table II).

TABLE I

	Normal Controls			Vitiligo Patients		
	Range	Mean	Standard Deviation	Range	Mean	Standard Deviation
Serum Glutamic Oxalacetic Transaminase (SGOT) Units per ml.	10–45	27	10	20–60	38	11
Serum Glutamic Pyruvic Transaminase (SGPT) Units per ml.	5–20	11	4	5–25	10	5
Blood Ascorbic Acid mgs.%	0.2 to 1.2	0.73	0.26	0.2 to 1.4	0.5	0.30

TABLE II

Test	Results (Range)
Total Proteins	6–8 gm.%
Albumin	3–4.5 gm.%
Bilirubin	0.1–1.2 mg.%
Thymol Turbidity	0 to 4.0 Units
Cephalin Cholesterol Flocculation Test ...	0 to +
Alkaline Phosphatase	5 to 13 Units (King and Armstrong)

TRANSAMINASES

Values over 42 units per ml. for SGOT and over 33 units per ml. for SGPT were considered as abnormal. In the vitiligo patients under study the values for SGOT varied from 20 to 60 units per ml. with a mean of 38 units per ml. and SGPT varied from 5 to 25 units per ml. with a mean of 10 units per ml. It is of interest to note that the SGOT was elevated in 34% cases while values of SGPT were within normal limits. The elevation of SGOT may be due to the hepatic damage in vitiligo, as liver is an important etiological factor in this disease,[4] Although there may be high incidence of parasitic infection, the elevation of transaminases may not be due to gastrointestinal disturbances.[5] Hence it is presumed that the elevation is due to hepatic dysfunction. In the absence of liver biopsy it was not possible to confirm this.

ASCORBIC ACID

The Ascorbic Acid in whole blood is a better indication of vitamin C status then its concentration in plasma.[6,7] In the 15 controls, the Ascorbic Acid level

in blood ranged from 0.2 to 1.2 mg.% with a mean of 0.73 mg.%. Our mean was slightly lower than that of other Indian workers though the range agrees with those for Indian Adults. This may be due to smaller number of controls taken for reference. For vitiligo patients, the values of Ascorbic Acid in blood ranged from 0.2 to 1.4 mg.% but the mean was 0.5 mg%. 42% of cases had values lower than the mean value. Patients suffering from gastro-intestinal diseases may have low absorption of Ascorbic Acid.[8] Since there is a high incidence of intestinal parasitic infection in the vitiligo patients, the low level of Ascorbic Acid in 42% of cases may be due to low absorption. Also it is of interest to note that Levei[9] had quoted the survey done in Hyderabad by Dr. Todd, that there had been low incidence of vitiligo, after a famine in that place while the scurvy cases were predominantly high at the same time. This may suggest that the Ascorbic Acid deficiency may retard depigmentation. On the contrary, we have found that the Ascorbic Acid of the blood was either normal or slightly lower than the mean value, which suggests that there is no direct relationship between the level of Ascorbic Acid and skin lesions and this agrees with the findings of Lever and Talbott[10] and Breastrup and Hansen.[11]

Regarding Transaminases and Ascorbic Acid, there is no correlation between their levels. This may be due to the fact that factors other than Ascorbic Acid also play an important role in the Pigmentation disorders.

CONCLUSIONS AND SUMMARY

(1) The blood Ascorbic Acid level in Vitiligo cases ranged from 0.2 to 1.4 mg.% with a mean of 0.5 mg. and standard deviation 0.3.

(2) There is no correlation between the heights of transaminase levels and the Ascorbic Acid levels in blood in this disease.

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