

SERUM IONIC COPPER IN VITILIGO

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Serum copper consists of ceruloplasmin copper bound to alpha² globulin and ionic copper loosely bound to albumin (Schienberg, 1966). Considerable experimental evidence indicates that the ceruloplasmin copper is incorporated into the protein only at the time of its synthesis in hepatic micro-somes (Sternlieb, 1962) and exchange of this copper with ionic copper does not occur in vivo (Sternlieb, 1961). Various studies on serum copper levels in vitiligo have shown a tendency to low levels (El Mofty et al., 1961; Kandhari and Sobhanadri, 1963; and Lal and Rajagopal, 1970). Behl et al., (1961) demonstrated significantly lower levels of serum copper in vitiligo cases compared to normal controls. On the other hand, serum ceruloplasmin levels in this disease have been reported to be significantly high (Goshal, 1969) or at least there is a tendency to higher side (Lal et al., 1970). As such it was considered that serum ionic copper might be significantly low in vitiligo. In this communication, we report our observations on serum ionic copper in vitiligo.

MATERIAL & METHODS

Serum total copper and serum ceruloplasmin were estimated in 21 normal persons in the age group of 15 to 50 years and 24 cases of vitiligo in the age group of 10 to 60 years.

The method of Gubler et al. (1952) was employed for the determination of total copper in serum. Serum ceruloplasmin was assayed by the method of Houchin (1958). Both the estimations were made from the same serum specimen of each person on the same day.

Since ceruloplasmin contains 0.34% copper (Putnam, 1960) the ionic copper in serum in ug.% was calculated by multiplying the value of ceruloplasmin in mg.% by 3.4 and subtracting this figure from the total copper.

RESULTS

The mean serum ionic copper was lower in vitiligo than that in normals. The difference, however, was found to be not statistically significant as shown in the following table:

Serum ionic copper in normals and vitiligo patients :

		Mean Serum Ionic Copper Ug. %	S. D.	'P'
Normals	(21)	39.15	22.43	
Vitiligo patients	(24)	30.18	21.61	>0.05

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DISCUSSION

In view of the various reports on serum copper and serum ceruloplasmin levels in vitiligo, it was thought that serum ionic copper may be significantly low in this disease. Our observations show a tendency to lower levels of serum ionic copper in this disease, but the difference from normals is not statistically significant. In view of these findings it may be inferred that oral administration of copper salts in vitiligo may not be of a therapeutic value rationally. However, further observations on this subject may be desirable to come to a final conclusion in this regard.

SUMMARY

Serum ionic copper was determined in 21 normals and in 24 vitiligo patients. The mean serum ionic copper was lower in this disease but the difference from normals was not significant statistically. It is inferred that oral administration of copper salts to vitiligo patients may not be of a therapeutic value rationally.

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