

Appendix

*A*UTHOR'S *P*UBLICATIONS

AUTHOR'S PUBLICATIONS

Based on some of the results of the present investigation.

1. Mandal, R.K.; Dasgupta, S.; Datta, S.C. and Mukherjee, S.(1979)
Interdependence of serum copper and ceruloplasmin level
on dietary ascorbic acid in pregnant and non-pregnant
subjects.
IRCS Medical Science (England), 7, 591.
2. Mandal, R.K.; Dasgupta,S.; Datta,S.C. and Mukherjee, S. (1979)
Plasma ascorbic acid level in pregnancy associated with
iron deficiency anemia.
IRCS Medical Science (England), 7, 445.

INTERDEPENDENCE OF SERUM COPPER AND CERULOPLASMIN LEVEL ON DIETARY ASCORBIC ACID IN PREGNANT AND NON-PREGNANT SUBJECTS

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The copper status of different animals has been found to be influenced by dietary factors other than copper in the diet

1) As most of the serum copper remains bound with the globulin fraction of the serum protein as ceruloplasmin (2), our present investigation was devised to study the correlation among serum copper, serum ceruloplasmin and dietary ascorbic acid level in the pregnant and non-pregnant women

Dietary ascorbic acid, serum copper and serum ceruloplasmin levels in pregnant and non-pregnant women (means \pm SE)

	No of observations	Dietary ascorbic acid (mg/day)		Serum copper μ g/100 ml	Serum ceruloplasmin mg/100 ml	Correlation coefficient R
		Range	Mean			
Non-pregnant						
Group I	106	≥ 50	69.46 ± 1.8	107.71 ± 3.5^a	25.65 ± 0.8^c	0.68
Group II	106	≤ 49	31.52 ± 1.3	131.57 ± 4.1^b	34.15 ± 0.8^d	0.64
Pregnant						
Group I	195	≥ 50	74.31 ± 1.2	192.85 ± 4.6^k	55.86 ± 1.7^m	0.57
Group II	195	≤ 49	33.62 ± 0.9	230.2 ± 4.8^l	69.38 ± 1.8^n	0.55

R denotes the multiple correlation of dietary ascorbic acid (independent variable), serum copper and serum ceruloplasmin levels. Changes between a and b, c and d, k and l, m and n are all statistically significant

Materials and methods Non-pregnant and pregnant (third trimester of pregnancy) women in the age range of 16 to 41 years belonging to different socioeconomic status groups admitted to the Obstetrics and Gynaecology department of a teaching hospital in Calcutta were selected for the present study. Both pregnant and non-pregnant subjects were divided into two subgroups on the basis of the presence of adequate level of ascorbic acid (3) in their daily diet. Blood samples were analyzed for serum copper and serum ceruloplasmin level (4, 5). Dietary ascorbic acid level was assessed by questionnaire methods (6) using tables of food composition (3). The experimental groups (groups II) were matched for age and parity with groups I and their results were compared.

Results and discussion It appears from the present investigation that an inverse relationship exists between the dietary intake of ascorbic acid and the serum copper level and also between the ascorbic acid and the serum ceruloplasmin level. These changes are more marked in the pregnant subjects. Addition of ascorbic acid in the diet of the animals depresses the intestinal absorption of copper and thus increases the severity of copper deficiency (1). The present investigation on pregnant and non-pregnant subjects (in the table) indicates marked elevation in serum copper and ceruloplasmin levels associated with low dietary intake of ascorbic acid. In late pregnancy the demand for ascorbic acid increases considerably leading to a deficiency state (7), which possibly facilitates greater absorption of this mineral specially in those subjects (group II) consuming less ascorbic acid in their daily diet.

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7. Mandal, R K, Dasgupta, S, Datta, S.C. and Mukherjee, S. (1979) *IRCS Med. Sci.*, 7, 445

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