

Erythrocyte G-6PD Levels in Puerperium

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In a previous publication we showed that the erythrocyte G-6PD levels of newly delivered mothers are quite significantly raised.¹ But, as was mentioned in that paper the erythrocyte G-6PD level has been shown to rise in patients with iron deficiency anemia,² which most of the mothers in our previous study had. For this reason, we again assayed the erythrocyte G-6PD activity of the mothers whose hematocrit was almost identical to that of the control group.

Materials and Methods

Erythrocyte G-6PD levels were assayed by the Zinkham³ method and expressed as units per 100 ml of packed red cells. Hematocrit (Hct) values were determined by microhematocrit from the peripheral blood at the same time as venous blood was obtained for the G-6PD assay.

Blood was obtained from 30 mothers whose ages ranged from 19 to 40 years, within three to seven days after parturition. The control RBC's G-6PD values were obtained from 25 normal females aged between 18 and 36 years who were neither pregnant nor on oral contraceptives or any other kind of medication.

Results

The RBC's G-6PD activities in the control group ranged from 72 to 150 U with a mean of 105.5 ± 5.2 U (S.D.:26.4U), and in the study

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group from 82 to 237 U, with a mean of 138.3 ± 5.7 U (S.D.:31.2U). Hct values in this group were between 35 and 44 (see Table I) indicating a statistically significant increase in the mothers compared to the controls ($P < 0.001$).

Comments

Since the Hct determinations in the study group did not indicate marked anemia, the rise in G-6PD activities could not be due solely to iron deficiency anemia. Control values of this study were somewhat lower

TABLE I
G-6PD AND HCT VALUES IN THE PUERPERAL PERIOD

Mother's Name	Hct	G-6PD U/100 ml of Erythrocytes
1 — D.B.	43	123
2 — A.N.	35	237
3 — K.F.	40	161
4 — F.A.	40	166
5 — A.A.	35	145
6 — A.B.	36	140
7 — G.M.	38	127
8 — D.N.	40	128
9 — Ç.E.	35	115
10 — K.A.	35	158
11 — T.M.	39	114
12 — Ö.A.	40	95
13 — M.	35	152
14 — A.T.	41	129
15 — T.Ü.	42	126
16 — K.H.	35	144
17 — O.R.	39	170
18 — Ş.C.	35	127
19 — A.Z.	43	82
20 — Ş.N.	41	82
21 — D.F.	44	150
22 — Ö.N.	43	132
23 — A.B.	40	113
24 — Y.G.	35	122
25 — Y.E.	40	141
26 — B.N.	37	185
27 — B.N.	39	174
28 — G.M.	90	121
29 — G.A.	36	162
30 — T.A.	38	128

than those of our previous group, and this control group was more specifically chosen. Not only were the subjects hematologically normal, but none of them was on oral contraceptives or any other drug that might effect the enzyme activity. However, if the G-6PD levels of the study group are compared with those of the previous control group, the difference is still found significantly raised ($P < 0.02$), though not to such a marked extent.

In this study we confirmed our previous results which showed that RBC's G-6PD activities increase during delivery, though we were still unable to establish whether this is due to hormonal induction of the enzyme activity or to other metabolic changes. We are presently assaying the G-6PD activity of women before and after starting to use oral contraceptives in order to show the induction of the enzyme by this hormonal factor, if any.

Summary

Erythrocyte G-6PD activity was assayed in 30 mothers, who did not have anemia, within three to seven days of parturition, and was compared to control female values. This enzyme was found statistically higher in the mothers than in the controls.

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