FETAL BEARINGS OF HISTOPATHOLOGICAL CHANGES IN PLACENTAE OF MOTHERS WITH SEVERE AND MODERATE ANEMIA

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SUMMARY

109 placentae - 75 from moderate and severly anemic mothers and 34 from non-anemic mothers were studied for different pathological changes. The former formed the group of cases and latter - controls. These changes were correlated with fetal outcome. It was found that villous hypovascularity, syncitic knots and fibrinoid necrosis had a significant association with I.U.G.R. However there was no significant effect of these changes on causing still births and early neonatal deaths. As the placental changes increased birth weights of newborns declined.

INTRODUCTION

Placenta is a live interface between the fetus and the mother. Many changes in the placenta which are as a consequence of some maternal condition have their bearings on the fetal outcome. Many changes in placenta have been identified due to maternal anemia like decreased villous vascularity (Rangnekar - 1993), increased syncitial knots (Sabharwal Khanna - 1987), frequent endarteritis obliterans (Gayatri et al - 1983) and the like.

In this prospective study we have tried to establish correlation, if any, between these changes and fetal outcome. We have not included non-nutritional anemias in this study as those have already been documented by our group previously in these pages (Desai & Desai - 1994).

SUBJECTS & METHODS

This prospective study was carried out in Unit III of the dept. of Obst. & Gynec., Medical College and S.S.G. Hospital, Baroda from January 1994 to February 1995.

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Accepted for Publication on 11.1.96

Seventy five consequtive cases of moderate or severe anemia who delivered in our unit were studied for placental changes in them and these were correlated with the fetal outcome. Thirty four placentae of non-anemic mothers served as controls.

Anemia was classified as that with Hb levels less than 6 gm. % as severe and between 6 and 8 gm. % as moderate.

All these placentae were washed clear and weighed and their dimensions taken immediately after delivery. Insertion of the cord was noted and gross examination of the placenta was done. It was then preserved in normal saline and pieces from representative areas were processed through series of dehydration steps. They were embedded in wax blocks and sections obtained. Slides were stained with hematoxylin and eosin and examined with reference to different histological findings against the background of normal standards of histology of placenta as described by Fox (1978).

RESULTS

There were 75 placentae in the anemic group and 34 controls, from non-anemic mothers.

Of these 75, 39 mothers gave birth to IUGR babies, whereas of the 34 controls there were 9 IUGRs. On analysing these IUGRs for correlation with placental pathology interesting results emerged.

As shown in Table I, when villous hypovasularity was present in placenta of

TABLE I
Villous Hypovasularity : IUGR

Hypovasularity	Cases : IUGR		Controls : IUGR	
	No.	%	No.	%
Present	24*	61.53	03	33.33
Absent	15*	38.46	06	66.66

* Difference statistically significant ($P < 0.05$).

TABLE II
Syncitical Knots, Fibrinoid necrosis : IUGR

Syncitial Knots	IUGR		Fibrinoid necrosis	IUGR	
	No.	%		No.	%
Increased	28*	71	Increased	24	61.53*
Normal	11*	28.6	Normal	15	38.46*

* Difference statistically significant ($P < 0.05$).

TABLE III
Placental changes : Birth Weights

	Birth weight 2000 gms.		Birth weight 2000-2500 gm.		Birth weight 2500 gms.	
	No.	%	No.	%	No.	%
-With placental changes.	25	67.57*	15	60.0	04	26.67*
-Without placental changes	12	32.43*	10	40.0	11	73.33*
Total	37		25		15	

* Statistically significant ($P < 0.05$).

anemic mothers, 61.53% babies had IUGR. But when this was absent only 38.46% babies had IUGR. This difference was statistically significant ($P< 0.05$). Number of such cases in nonanemic group serving as controls was small and therefore not compared, though displayed.

As shown in Table II, increased syncitial knots which was a feature of these placentae produced IUGR. Just as fibrinoid necrosis did in significant number of babies ($P < 0.05$). Vasculo syncitial membranes found in placentae of anemic mothers did not show any significant association with IUGR.

There was no significant association between the placentae which showed pathological changes and occurrence of still births and early neonatal deaths, in this study.

As shown in Table III, as placental changes increase, birth weights declined. Thus 67.57% babies with birth weights less than 2000 gms. had pathological placental changes of anemia; the same figure declined to 26.67% when birth weight was more than 2500 gms. Difference was statistically significant ($P < 0.05$). To 75 mothers, 77 babies were born, two being twins.

DISCUSSION

Clinical implications of placental changes in anemia have remained poorly documented and studied. Very few studies are being seen these days (Rangnekar - 1993). By and large studies have confined to elaborate descriptions of placental changes in jargons of pathology (Agboola & Busch - 1975, Murthy - 1976). This is not to reduce the importance of such descriptions but it can leave a clinician baffled. In this prospective study, we have tried to find out and establish correlations, between these changes and their bearing on fetal outcome.

Villous hypovascularity is implied when the vessels are small and nondilated (Fox - 1977). This is either because of

delayed villous maturity or is secondary to an obstructive lesion of fetal stem arteries. In anemia the former seems to be the cause. Also, this lesion has a significant association with IUGR as shown in this study.

Syncitial knotting is said to be a response to ischemia or hypoxia (Tominga & Page - 1966). This explains the causation of IUGR in anemia, chronic placental hypoxia producing this pathological feature. Also IUGR, association of which was found significant in this study, was due to anemia.

When total summation of placental changes was done and its association studied with birth weights of the newborn, we found that as the changes increased - birth weight of babies declined significantly.

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