

ROLL OVER TEST IN INCIPIENT PRE-ECLAMPSIA

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Pre-eclampsia and eclampsia are one of the most common serious complications of pregnancy. Although exact aetiology has not been established, clinical methods for treatment are widely used and have been of significant value. Treatment would be of even greater value if we could predict which patient would develop pre-eclampsia.

Gant *et al* (1973) reported an effective method of predicting the development of pre-eclampsia i.e. Roll over test. Present study was undertaken in an effort to confirm the use and accuracy of Roll over test (R.O.T.).

Material and Method

Seventy-five normal primigravid women were randomly taken for study between 28 to 32 weeks gestation, attending antenatal clinic of Zanana Hospital, Udaipur during July 1977 to December 1977. None of the patient had a previous history of hypertension, renal disease or diabetes. In the performance of the test the patient was placed in left lateral recumbent position and after 20 minutes blood pressure was recorded. The patient was then rolled over into the supine position and blood pressure was recorded after 5 minutes. The test was considered positive if there was increase of 20 m.m. or greater in the diastolic blood pressure from the left lateral recumbent to the supine position. If the diastolic pressure change between the two positions was

less than 20 mm of Hg. the test was considered as negative.

The patients were followed throughout the course of pregnancy, labour and post-partum for development of pre-eclampsia.

Results

The Roll over test was performed on 75 primigravidas between 28 to 32 weeks of gestation. The test was negative in 60 patients (80%) and positive in 15 (20%) Table I.

TABLE I
Distribution of Cases

ROT	No. of cases	%
Positive	15	20%
Negative	60	80%

Out of 60 patients with negative test, 57 (95%) remained normotensive throughout pregnancy, whereas 3 patients (5%) developed pre-eclampsia.

Out of 15 patients with positive tests 13 (87%) developed pre-eclampsia after 4 to 8 weeks. Changes of blood pressure were 22 to 34 mm; 2 cases (13%) did not develop toxemia though the test was positive. Tables II and III.

TABLE II
Accuracy of ROT

ROT	Total No. of cases	Developed P.E.T.	Accuracy
Positive	15	13	87%
Negative	60	3	95%

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TABLE III
Diastolic Blood Pressure Change in ROT Positive Cases

S. No.	Diastolic blood pressure (mm of Mercury)		Increase in diastolic B.P. (mm of mercury)	Developed P.E.T.	After how many weeks
	Lateral position	Supine position			
1	50	80	30	Yes	4
2	60	88	28	Yes	6
3	50	84	34	Yes	6
4	40	70	30	No	—
5	80	104	24	Yes	4
6	70	90	20	Yes	6
7	62	86	24	Yes	8
8	80	100	20	Yes	6
9	60	80	20	No	—
10	50	70	20	Yes	6
11	70	94	24	Yes	4
12	50	80	30	Yes	4
13	60	90	30	Yes	8
14	70	92	22	Yes	6
15	64	88	24	Yes	5

Discussion

The present study indicates highly significant co-relation between the positive ROT and subsequent development of pre-eclampsia and a negative test shows a similar high co-relation with absence of subsequent pre-eclampsia. Test was false positive in 13% and false negative in 5%.

Gant *et al* (1974) and Karbhari *et al* (1977) reported about 7 to 9% false negative as well as false positive test, while Gudson *et al* (1977) reported 50% false positive and 7% false negative test.

The mechanism which mediates the hypertensive vascular response in the supine hypertensive test is unknown. In patients prone to develop pre-eclampsia, a decrease in the metabolic clearance rate of dehydroisoandrosterone sulphate is also noted as well as an increase in vascular sensitivity to infused angiotensin II by Gant *et al* (1973, 1974). Both of these

changes preceded the clinical manifestation of pre-eclampsia by several weeks. Because of the immediacy of hypertensive response shown in the ROT, a reflex hypertension perhaps mediated by baroreceptors seems a more logical mechanism than activation of the renin angiotensin system which would probably require a longer time interval for clinical manifestations to appear.

The value of the ROT lies in its reliability, simplicity and inexpensiveness. It requires no elaborate equipment or special skill and minimal time as opposed to the more elaborate and expensive test for angiotensin II response and metabolic clearance of dehydroisoandrosterone sulphate. Prediction of P.E.T. 4 to 8 weeks prior to its onset can be used for prevention of P.E.T. by restricted activity and rest in lateral recumbent position thereby reducing perinatal and maternal morbidity due to it.

Summary

Accuracy of ROT in positive cases was 87% and 95% in negative cases. The test is an effective method of predicting incipient eclampsia.

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