A STUDY ON THE ANTIGENICITY OF THE AMNIOTIC FLUID IN ECLAMPSIA

by

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The findings of Robertson *et al* (1967), Fox (1969) and Das Gupta (1975) pointed towards the immunological basis of toxaemia of pregnancy. The present investigation was undertaken to observe whether the antigenicity of liquor amnii in antepartum eclampsia was in any way different from that in normal pregnancy.

Material and Method

Amniotic fluid was collected by transabdominal amniocentesis in sterile containers from normal term pregnancy and near term antepartum eclampsia with fits not yet controlled. The fluid was centrifuged, filtered aseptically and stored in sterile sealed ampoules at 4°C. Eight virgin female rabits each weighing about 1200 gms were selected. The amniotic fluid from normal pregnancy was injected intravenously in gradually increasing doses from 0.25 to 2.0 ml to 4 of the rabbits. In the remaining 4 animals, the fluid from eclampsia cases was injected in the same way. Total of 15 injections were given to each rabbit and the rabbits were bled one week after the last injection. Sera were separated aseptically and stored at 4°C in sterile sealed ampoules.

Interfacial precipitation was observed when the amniotic fluid from normal pregnancy or eclampsia cases was treated with the serum raised against them (Fig. 1). This precipitation was absent when the rabbit's serum was used which was not raised against amniotic fluid. Gel diffusion was done by putting anti-amniotic rabbit's serum from normal pregnancy and eclampsia cases in the central reservoir of alternate plates respectively, and the liquor amnii from normal and eclampsia cases in the peripheral reservoirs in each of the plates. The plates were left at room temperature for 5 to 7 days.

Tanned red cell agglutination test was performed exactly by the method described by Roitt and Doniach (1958). Amniotic fluid from normal and eclampsia cases was used as antigen for coating the freshly drawn, washed and tanned sheep erythrocytes. Rabbit's serum raised against amniotic fluid from normal and eclampsia cases (inactivated at 55°C for 30 minutes) was placed in perspex agglutination tray in increasing dilutions marked on the cups, using 1 per cent normal rabbit's serum in buffer solution for the purpose of dilution. Now, 0.1 ml of the tanned, antigen coated sheep erythrocytes was added to each cup and mixed thoroughly. The tray was left at room temperature for 2-3 hours and at 4°C in refrigerator overnight. Positive result was indicated by an even carpet appearance of the cup and negative result was read from the densely packed red cells at the bottom of the cup giving the appearance of a button-hole.

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TABLE I

Result of tanned red cell agglutination Test

Serum Dilution	1/5	1/25	1/250	1/2500	1/25000	1/250000	1/2500000	A.I. Control*
**A.F. from normal pregnancy	+	+	+	—	—	—	—	—
**A.F. from antepartum eclampsia	+	+	+	+	±	—	—	—

* Antigen inhibition control. ** Amniotic fluid.

Discussion

Warden (1927) for the first time reported that the amniotic fluid might be a possible factor in the aetiology of eclampsia. Lambotte and his associates (1962, 1963) showed that the liquor amnii was antigenic and was capable of inducing autoimmunisation in human females as well as in rabbits. The results of the present investigations indicate that the antigenic components of the liquor in eclampsia did not differ from that in normal pregnancy. Tanned red cell agglutination test did not reveal any significant change in the titre of anti-amniotic antibodies in eclampsia compared with normal pregnancy. We (Sinha, Mukerjee, Mallick and Achari, 1968) also arrived at similar conclusion as regards antigenicity of the placenta in toxaemia of pregnancy using the tanned red cell agglutination technique.

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See Figs. on Art Paper II