

TERATOLOGY. LETTER TO THE EDITOR:

**Incidence of Fetal Alcohol Syndrome on the southern part of Reunion island (France)**

by Thierry Maillard\*\*, Denis Lamblin\*\*, Jean-François Lesure\*\*\* and Alain Fourmaintraux\*.

\* Centre Hospitalier Sud-Réunion, Service de Pédiatrie, 97410 Saint-Pierre (France)

\*\* Fondation du Père Favron, Centre d'Action Médico-Sociale Précoce, 97450 Saint-Louis (France)

\*\*\* Hôpital d'Enfants de Saint-Denis, Service de Pédiatrie II, 97476 Saint-Denis (France)

We were thrilled by the paper of Sampson, Streissguth et al. ('97). In fact, we have made a prospective research on the same topic (Maillard, '98) on Réunion Island. Réunion Island is an overseas french county situated in the Indian Ocean, between Mauritius Island and Madagascar island, where live 700 000 residents of several communities : European Caucasian, Chinese, Indian Muslim, Indian Hindu, Black African and Creole half-blood people

**Methods.** During a year period (from January first to December 31<sup>st</sup> 1996) all the 2778 newborns delivered in the Obstetrical Unit of the Centre Hospitalier Sud-Réunion in Saint-Pierre were selected on maternal and fetal criteria in view of detecting clinical signs of Fetal Alcohol Syndrome (FAS) or possible fetal alcohol effects (PFAE). Fetal criteria were growth retardation (height, weight, or head circumference) under the tenth percentile, or craniofacial dysmorphic features of FAS, observed by neonatologists, who systematically examined all newborns delivered in the Obstetrical Unit. The dysmorphic features used were those defined by Kaminski et al. ('89). We considered that the FAS was full if it combined four major features (short palpebral fissures, flat nasal bridge and/or anteverted nostrils, long and/or convex and/or smooth philtrum, thin upper lip). We considered that the FAS was partial if it had between 1 and 3 major features. Women were selected by an independent investigator who interrogated all the mothers of the newborns under the tenth percentile, and also the mothers well known for their alcoholic addiction. Maternal criteria for certain alcohol consumption during pregnancy were regular intake  $\geq 21$  drinks per week, and/or a CAGE-positive  $> 1$ , and/or a notorious alcoholic addiction with

medical or social problems. Maternal criteria for uncertain alcohol consumption were heavy drinking  $\geq 5$  drinks on an occasion, and/or a CAGE-positive = 1, and/or abnormal biological tests (MCV of erythrocytes  $> 98$  fL and/or  $\gamma$ GT  $> 25$ U/L), and/or a significant clinical examination (Le Go screening test) (Le Go, '68). Neonatologists were not aware of the maternal selection made by the independent investigator.

**Results.** 521 out of 2778 newborns were selected. Results are given in the table I, according to a classification derived from the IOM report ('96).

Table I. Incidence of FAS.

| FAS     | MOTHERS                       | NEWBORNS | INCIDENCE             |
|---------|-------------------------------|----------|-----------------------|
| FULL    | Certain Alcohol Consumption   | N = 5    | 1.8/1000 total births |
| FULL    | Uncertain Alcohol Consumption | N = 0    | 0 “                   |
| PARTIAL | Certain Alcohol Consumption   | N = 7    | 2.5 “                 |
| PARTIAL | Uncertain Alcohol Consumption | N = 9    | 3.2 “                 |

**Discussion.** The women delivered in the Obstetrical Unit of the Centre Hospitalier Sud-Reunion are representative of all the communities living in the island. Compared with Dehaene's classification reported by Sampson et al. ('97), our results are nearly similar with an incidence of 4.3 / 1000 ( 1.8 + 2.5 / 1000), that is 12 newborns with FAS diagnosis per 2778 births.

These temporary results probably underestimate reality. The maternal alcohol intake is difficult to assert because of the usual denial. On the other hand the failure to recognize FAS at birth is well-documented (Little, '90). That's why we did not retain the partial FAS diagnosis for the nine infants born of mothers with uncertain alcohol consumption. Our study, moreover, emphasizes that many infants (25,3 percent of the selected population) were born of mothers who drank

during pregnancy, but had no FAS at birth : 44 of mothers with certain alcohol consumption and 88 of mothers with uncertain alcohol consumption. These infants might have a PFAE. The follow-up of all selected newborns has been undertaken with clinical, psychometric and neurobehavioural assessments at 12 months, 30 months, 4 1/2 years and 7 years. We hope this follow-up will enable us to refine the incidence of FAS and to know the frequency of alcohol-related birth defects (ARBD) and alcohol-related neurodevelopmental disorders (ARND).

In conclusion, our first results confirm the concerns of Lesure ('88) about the incidence of the FAS in the northern part of the island with six FAS per a thousand births and join those published in the report of Sampson et al. ('97).

#### LITERATURE CITED

IOM-Institute Of Medicine (U.S.). Division of Behavioural Sciences and Mental Disorders.

Committee to study Fetal Alcohol Syndrome. (1996) Fetal Alcohol Syndrome : Diagnosis, Epidemiology, Prevention, and Treatment. K. Stratton, C. Howe and F. Battaglia, eds. National Academy Press, Washington D.C.

Kaminski, M., A. Rostand , N. Lelong , P. Dehaene, I. Delestret, C. Klein-Bertrand, D. Querleu, G. Crépin (1989) Consommation d'alcool pendant la grossesse et caractéristiques néonatales. Journal d'Alcoologie (HCEIA),1:35-46.

Le Go, P.M. (1968) Le dépistage précoce de l'éthylisme. Presse Med.,76:579-580

Lesure, J.F. (1988) L'embryofoetopathie alcoolique à l'île de la Réunion : un drame social. Rev. Pédiatr.,24:265-271.

Little, B.B., L.M. Snell, C.R. Rosenfeld, L.C. Gilstrap and N.F. Gant (1990) Failure to recognise fetal alcohol syndrome in newborn infants. Am. J. Dis. Child.,144:1142-1146.

Maillard, T. (1998) L'Alcoolisation foetale à l'île de la Réunion : enquête transversale à la Maternité de Saint-Pierre pendant l'année 1996. Thèse de Médecine, Rouen (France).

Sampson, P.D., A.P. Streissguth, F.L. Bookstein, R.E. Little, S.K. Clarren, P. Dehaene, J.W.

Hanson and J.M. Graham, JR (1997) Incidence of Fetal Alcohol Syndrome and Prevalence of Alcohol-related Neurodevelopmental Disorder. *Teratology*,56:317-326

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Correspondence to : Dr Alain Fourmaintraux, Centre Hospitalier Sud-Réunion, Service de Pédiatrie, BP 350, 97448 Saint-Pierre Cedex (France)