

Ultrastructural Evidences of Alterations in Blood Platelets Due to Mercury Exposure in Dentists and Dental Assistants

R. Naveda,* A. Castellano,** and P. Salas*

*Universidad Nac.Exp. Francisco de Miranda, Área Ciencias de la Salud, Coro, Venezuela.

**Universidad del Zulia, Instituto de Investigaciones Biológicas, Maracaibo, Venezuela, Apdo.526

In order to determine ultrastructural alterations of blood platelets a prospective study was carried out, in 7 dentists and 10 dental assistants from SILO-CORO, Falcon State, Venezuela. They were distributed in three groups depending on the mercury exposing time (less than 5 years, from 5 to 10 years and more than 10 years of being exposed). Peripheral blood (5cc) was taken from each patient and processed by the method for free cells in order to observe under a transmission electron microscope [1]. Outlying clusters of glycogen and a light dilatation of surface-connected canalicular system in the platelets from group with less than 5 years of exposure were observed [2].

In the group from 5 to 10 years of exposing, some platelets displayed dispersed glycogen in the cytoplasm; in others platelets, accumulated glycogen in some areas was evident; some platelets showed abundant glycogen inside dilated surface-connected canalicular system, whereas in others, irregular electron dense annular structures on a electron translucent background were visualized [3].

In the third group (more than 10 years of exposure), platelets with clusters of glycogen close to the cytoplasmic membrane were observed; in others, the glycogen was dispersed in the granulomere region. Electron dense structures with irregular aspect, many granules and dense bodies and dilatation of surface-connected canalicular system were also detected [4]. Since the alterations were more accentuated with the increasing of exposure time, these findings can be attributed as a consequence from severe mercurial exposing.

References

- [1] M. Palmar et al., *Biol.Psych.* 42 (1997) 965.
- [2] L. Ebbeling et al., *Blood*, 80 (1992) 718.
- [3] J.G.White, *Blood*, 33 (1969) 598.
- [4] P. Zabinskiz et al., *Toxicol.and Health*, 16(2) (2000) 58.



FIG. 1. The micrograph shows the platelet cytoplasm (P). Glycogen (glu) in a dilated canalicular system (arrows) are clearly noticeably. X 60.000



FIG. 2. The micrograph shows many granules and dense bodies (arrow) and an important dilatation of surface-connected canalicular system (arrow head). X 18.000