

THE MULTIFACTORIAL ORIGIN OF VASCULAR DISRUPTION DEFECTS IN CALI, COLOMBIA: A CASE CONTROL STUDY

Yoseth Ariza-Araujo, Grupo Epidemiología y Salud Poblacional, Escuela de Salud Pública, Universidad del Valle. Cali, Colombia.

Harry Pachajoa, Grupo Malformaciones Congénitas y Dismorfología (MACOS), Facultad de Salud, Universidad Icesi. Cali, Colombia

Milton Suárez, Grupo de Nutrición, Facultad de Salud Universidad del Valle. Cali, Colombia

Cristina Araujo, Grupo de Nutrición, Facultad de Salud Universidad del Valle. Cali, Colombia

Carolina Isaza, Grupo Malformaciones Congénitas y Dismorfología (MACOS), Universidad del Valle. Cali, Colombia

Fabián Méndez, Grupo Epidemiología y Salud Poblacional, Escuela de Salud Pública, Universidad del Valle. Cali, Colombia

Background: Vascular disruption defects(VDD) refer to birth defects caused by alteration of blood flow and decreased availability of O₂ in a tissue/organ during a critical period of fetal formation. Surveillance of birth defects in Cali-Colombia is developed under the ECLAMC. An analysis of the spatial and temporal distribution reported a cluster of VDD in the poorest area of the city.

Objective: To evaluate socioeconomic, behavioral and environmental factors potentially associated to VDD in Cali

Methods: A case-control study was carried out between 2007 and 2009. Cases were newborns with VDD(mainly gastroschisis, limb reduction) and normal karyotyping. Controls were normal newborns from the same hospital with conception date +/- two weeks of cases. A questionnaire was applied to collect information about: socioeconomic condition(race, education, income level), behavioral (smoking, alcohol, marihuana and cocaine), environmental exposures(activities with high risk)and diet(folic acid, Zn, Fe). Heavy metals(Cd,Pb,Zn) were determined on hair samples of a subgroup of participants(n=50)

Results: We included 45 VDD cases and 135 controls. Women of racial minorities(black and indigenous) had an increased risk of VDD(OR:2.34;CI95%=0.93-5.74). Also, mothers exposed to secondhand smoke during the first trimester had an increased risk OR:3.02(CI95%=1.34-6.8). Although, in univariate analysis, increased levels of cadmium were not related to VDD(OR:1.18;CI95%=0.24-4.74), after adjusting for low levels of Zn the risk increased to 5.22(CI95%=0.41 - 66.19). In addition, exposure to Misoprostol®, a method used for abortion, was associated with VDD(OR:14.14;CI95%:1.29-703.14)

Conclusions: Our results suggest multiple exposures potentially associated to VDD, and increased susceptibility and vulnerability. Environmental and behavioral factors, including the use of recreational drugs, smoking, and periconceptional exposure to sub therapeutic doses of abortion drugs may interact in the etiology of VDD.

References:

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