

## LIPID PEROXIDATION IN CORD BLOOD AT BIRTH: THE EFFECTS OF BREECH DELIVERY

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### ABSTRACT

**OBJECTIVE:** The purpose of this study was to determine oxygen free radical activity in breech presentation at birth and relate it to umbilical cord blood acid-base status.

**DESIGN:** A series of 63 singleton deliveries (28 cephalic deliveries (controls), 23 breech deliveries with normoacidemia, and 12 breech deliveries with mild acidemia) had determination of malondialdehyde and acid-base parameters.

**SETTING:** Delivery suite in the Department of Obstetrics and Gynaecology at Süleyman Demirel University, Isparta, Turkey.

**POPULATION:** 63 singleton term deliveries, spontaneous or induced labour and initially normal fetal heart rate tracing.

**METHODS:** After delivery, umbilical cord arterial and venous blood samples were collected for determination of malondialdehyde. Oxygen saturation, PO<sub>2</sub>, PCO<sub>2</sub>, pH, and base excess (BE) were also measured.

**MAIN OUTCOME MEASURES:** Umbilical cord arterial and venous bloods gases and malondialdehyde levels.

**RESULTS:** There was a significant correlation between umbilical arterial and venous levels of malondialdehyde and all acid-base parameters ( $p < 0.001$ ). It has been found that there were negative correlations between malondialdehyde and pH, PO<sub>2</sub> and bicarbonate while there was a positive correlation between malondialdehyde and PCO<sub>2</sub>. A positive correlation between malondialdehyde and base excess was present in the control group and total breech group ( $n=35$ ). The malondialdehyde levels in the total breech group, nonacidemic breech group ( $n=23$ ) and mildacidemic breech group ( $n=12$ ) were significantly higher than those in the control group ( $p < 0.0001$ ). However, acid-base parameters in the nonacidemic breech group were not statistically different from those in the control group.

**CONCLUSION:** Lipid peroxidation products (malondialdehyde) were found to exist to some extent in the umbilical cords of newborns with normal acid-base parameters in breech delivery. Our data support the contention that lipid peroxide may be a more appropriate outcome measure than acid-base balance.