Infant outcome at four years of age after intrapartum sampling of scalp blood lactate for fetal assessment. A cohort study. Version 3

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Abstract

Objective To correlate the value of lactate in fetal scalp blood at delivery and the outcomes of the offspring at four years of age.

Methods: Cases where scalp blood lactate was taken within sixty minutes before delivery were identified from the randomized trial "Determination of pH or lactate in fetal scalp blood in management of intrapartum fetal distress". Data were divided according to the generally accepted cutoffs for normality, pre-acidemia, acidemia and concentrations above mean +2 SD during the second stage. The outcome measures included gross-/fine motor function, vision, hearing, speaking and cognitive disorders, signs of central motor damage and referral to specialized pediatric services.

Results: 307 cases were available for final analyse. With normal scalp lactate concentration, the number of children with a diagnosed disorder was lower compared to the pre-acidemic/acidemic groups, although the findings were only significant for fine motor dysfunction (p = 0.036). Elevated lactate values were significantly associated with increased risk for a poorer capacity of attention and understanding of instructions (OR 1.37, 95% CI 1.07-1.74), and for fine motor dysfunction (OR 1.22, 95% CI 1.00-1.49) at the age of four.

Conclusion: Higher levels of lactate in fetal scalp blood are associated with increased risk of an aberrant developmental outcome at four years of age in some areas. If scalp lactate is normal, it seems safe to allow labor to continue.

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