Pain tolerance and pain perception in adolescents born extremely preterm

Abstract:

**Background:** Neonatal pain experiences have been associated with altered processing and perception of pain later in life, but findings are ambiguous.

**Aim:** To compare experimental pain tolerance and subjective health complaints in a population-based cohort of adolescents born extremely preterm to that of matched term-born controls.

**Method:** Thirty-one (89%) of 35 eligible preterms (mean gestational age 26.8 weeks) and 28 (80%) term-born controls participated in this follow-up study at mean age 17.8 years. Subjects performed a standardized Cold Pressor Task (hand in ice water) and completed validated questionnaires regarding current health complaints, including pain issues.

**Results:** Ten (32%) subjects born preterm vs. 17 (61%) born at term reached the ceiling time of 180 seconds immersion time in the ice water, a hazard ratio for early withdrawal of 2.05 (95% confidence interval 1.72, 2.44), with males explaining most of the difference. For subjects born preterm, the risk of early withdrawal decreased significantly with more days of mechanical ventilation, more pain events and more doses of morphine during the newborn period. Subjective pain ratings during the CPT as well as health related complaints and pain issues reported in the questionnaires were similar in the preterm and term-born group.

**Conclusion:** Subjects born preterm scored their pain experiences similarly to those of the term-born controls, however, their tolerance to experimental pain was reduced. Differences were explained mainly by males and by those exposed to least invasive neonatal treatments and thus least pain treatment.