Impact of simulation training on the management of shoulder dystocia and the incidence of permanent brachial plexus birth injury in Helsinki University Women's Hospital: an observational study

Marja Kaijomaa[1], Mika Gissler[2], Outi Ayras[3], Assi Sten [3], and Petra Grahn-Sharar[4]

[1]University of Helsinki Faculty of Medicine
[2]National Institute for Health and Welfare (THL)
[3]Helsinki University Central Hospital Department of Obstetrics and Gynaecology
[4]University of Helsinki Children's Hospital

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Abstract

Objective: To study the impact of shoulder dystocia (SD) simulation training on the SD management and the incidence of permanent brachial plexus birth injury (BPBI). Design: Retrospective observational study Setting: Helsinki University Women's Hospital, Finland Sample: Deliveries with SD Methods: Multi-professional, regular and systematic simulation training for obstetric emergencies began in 2015 and SD was one of the main themes. A study was conducted to assess changes in SD management and the incidence of permanent BPBI. The study period was from 2010 to 2019; years 2010–2014 were considered the pre-training period and 2015–2019 the post-training period. Main outcome measures: The primary outcome measure was the incidence of permanent BPBI after the implementation of systematic simulation training. Also changes in the SD management were analysed. Results: During the study period, 113,085 vertex deliveries were recorded. The incidence of major SD risk factors (gestational diabetes, induction of labour, vacuum extraction) increased and was significantly higher for each of these ($p < 0.001$) during the post-training period. The incidence of SD also increased significantly (0.01 vs 0.3%, $p < 0.001$) during the study period, but the number of children with permanent BPBI decreased dramatically after the implementation of systematic simulation training (0.04 vs 0.02%, $p < 0.001$). The most significant change in the management of SD was increased incidence of a successful delivery of the posterior arm. Conclusions: Systematic simulation-based training of midwives and doctors can translate into an improved individual and team performance and significantly reduce the incidence of permanent BPBI.

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