

Ethnicity is a risk factor for permanent brachial plexus birth injury: A population study in Southern Finland

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Abstract

Objective: To calculate the incidence and assess risk factors leading to permanent brachial plexus birth injury (BPBI) in Southern Finland **Design:** Retrospective population-based study **Setting:** Helsinki University Women's Hospital and Helsinki University New Children's Hospital, Finland **Sample:** All children born from 2006 to 2022 in Southern Finland with a permanent BPBI and their mothers **Methods:** Birth information of all mothers and their children born from 2006 to 2022 in Southern Finland were gathered from the national database and compared to prospectively collected data from mothers and their children with a permanent BPBI delivered within the same period. Permanent injury was defined as limited active or passive range of motion or decreased strength in the affected limb detected at one year of age. The severity of the injury was assessed using the 3-month Toronto test score. **Main outcome measures:** Permanent brachial plexus birth injury **Results:** Altogether, 298 428 children were born within the study period, of which 100 acquired a permanent BPBI. The incidence of a permanent BPBI was 0.4 per 1000 vaginal live births (0.34 all births), with a declining trend. Children born to immigrant mothers and women of Black ethnicity had a higher incidence of permanent injury (0.85 and 1.52 per 1000). Non-white background and immigrant status correlated with a more severe injury ($\beta=-1.12$ range, -2.17 to -0.07, $p=0.004$), with children to Black mothers having the least favorable outcome ($\beta= -1.64$ range, -2.79 to -0.49, $p=0.005$). **Conclusion:** The overall incidence of permanent BPBI is declining. Immigrant status and Black ethnicity increase the risk of a permanent BPBI.

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