

Abusive head trauma in Norway

Stray-Pedersen A.^{1,2,3*}, Vollmer-Sandholm, M.-J.^{2,3}, Rognum, T.O.² & Osberg S.^{2,3}

*lead presenter

¹ arne.stray-pedersen@medisin.uio.no

² Department of Forensic Sciences, Oslo University Hospital, Norway

³ Department of Forensic Medicine, Institute of Clinical Medicine, University of Oslo

Background: Severe head injuries in infants and small children requiring hospitalization are rare. When they occur, there is often a discrepancy between the history provided by the caretakers and the child's injuries, leading to suspicion of Abusive Head Trauma (AHT). According to Norwegian law, Health care professionals are required to report to law enforcement when there is suspicion of inflicted injuries, and, as part of the investigation forensic doctors are called upon to evaluate these cases. The aim of this study was to describe the injury characteristics and conclusions of the forensic evaluation in AHT cases in Norway.

Methods: We retrospectively reviewed the forensic reports at the department of forensic medicine in Oslo, including all living children <4 years evaluated for AHT between the years of 2003-2019.

Results: A total of 77 cases of suspected AHT were identified. The median age was 4 months (range 2 weeks – 3.5 years) and 64% were boys. Subdural hemorrhage (SDH) was present in 61 cases (79%); 58 bilateral and 39 showed multifocal distributions. Brain injuries, predominantly hypoxic-ischemic were observed in 41 cases (52%). Cortical contusion-like hemorrhages were described in 10 cases (13%). Retinal hemorrhages (RH) were detected in 48 cases (62%) of which 39 were widespread in all quadrants. Skull fractures were observed in 27 cases (35%). In 20 cases (26%) extracranial fractures to the ribs and/or long bones were detected. The so-called triad of multifocal SDH, widespread RH and injuries to the brain parenchyma were present in 31 cases (40%). Seven infants died of the injuries and 9 survived with major neurological complications.

In 21 cases (27%) the injuries were deemed indeterminate, possibly explained by an accidental event or a minor trauma in combination with a medical condition. In the remaining 56 cases the injuries were deemed caused by major trauma, most likely inflicted.

Conclusion: This study describes the injury patterns and forensic medical evaluation of suspected AHT patients in Norway. The injuries vary significantly from case to case, but the patterns are similar to other international studies. A large proportion of cases were deemed indeterminate during the forensic evaluation.