

Do Inter-Country Differences in the Frequency of Abusive Head Trauma Reflect Different Proportions of Overdiagnosis of Abuse or True Differences in Abuse?

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The register study by Yamaoka et al examines presumptive ($N = 324$) and possible abusive head trauma (AHT) ($N = 2,603$) in infants up to 1 year of age derived from hospital discharge data based on the ICD-10 codes of head trauma, retinal haemorrhage, and intentional injuries, with exclusion of unintentional injury and fall accidents. They report an incidence of 7.2 per 100,000 and 41.7 per 100,000 for presumptive AHT and possible AHT respectively.¹ Sweden had 2.3 per 100,000 infants born 1997–2014 with abuse diagnoses and subdural haemorrhage (SDH), including acute non-traumatic SDH,² while the British Isles had 14.2 infants per 100,000 with SDH and abuse diagnosis during the years 1998–1999.³

One reason for the differences in incidence might be dissimilar diagnostic procedures between Japan, the British Isles, and Sweden. Yamaoka et al raise a limitation to their register study; that they did not have access to records, thus stating that the reported incidence might be an underestimate. However, Yamaoka et al do not question the possibility of overdiagnosis of abuse by failure to recognise natural conditions, such as Benign External Hydrocephalus (BEH).⁴ BEH is an apparently congenital condition that may be, and may have been, misdiagnosed as abuse. It is subtype of hydrocephalus, characterised by a rapid increase of head circumference (HC) in infancy, enlarged subarachnoid spaces (especially frontally), and normal or enlarged ventricles. Most of these infants are born with a normal HC that typically increases during the first months of life.^{5,6} Yamaoka et al are puzzled by their observation of two age peaks of incidence on “abuse”. While the first, at 1–3 months, coincides with the peak incidence of sudden infant death syndrome (SIDS), the second coincides with the mean age at referral of BEH.⁵ All three conditions (AHT, BEH, and SIDS) show a marked male preponderance and share many other demographic features.^{2,5–7} These similarities are indeed intriguing

and may indicate causal relationships that deserve further exploration.

We question the validity of ICD codes in defining AHT: “an injury to the skull or intracranial contents of an infant or young child (<5 years of age) due to inflicted blunt impact and/or violent shaking”.⁸ A systematic literature review by the Swedish Agency for Health Technology Assessment and Assessment of Social Service identified circular reasoning as a major bias in AHT-diagnosis, and concluded that there “is insufficient scientific evidence on which to assess the diagnostic accuracy of the triad of subdural haemorrhage, retinal haemorrhage, and encephalopathy in identifying traumatic shaking (very low-quality evidence)”, or its components.⁹ Based upon the results of this review, the definition of AHT used by Yamaoka et al is unreliable. Although this systematic literature review has been much contested,^{10–12} it is a major step forward for evidence-based child protection. Overdiagnosis of infant abuse diagnosis has severe public health and ethical implications and threatens trust in child care.

We conclude that a major limitation of the provided incidences from Japan, the British Isles, and Sweden might be imprecise case definition of abuse, based on the presence of SDH, and not true differences in the incidence of abuse.

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