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EDITORIAL

Persistence of infant crying, sleeping and feeding problems – need for prevention

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Excessive crying, difficulties in feeding such as food refusal and difficulties with falling asleep or maintaining sleep after 4-6 months of age are labelled infant regulatory problems (RPs). If RPs occur together (having more than one regulatory problem), they have been found to be associated with behaviour and emotional problems in childhood and even in adulthood ¹. There is emerging evidence that alterations in brain activation may mediate the effects of infant RPs on emotional outcomes ². RPs occur frequently with up to 25% of infants experiencing single regulatory problems and 4-10% multiple RPs. Concern about their infant's health and the distress caused to parents make RPs one of the most frequent reason for parents to seek help from child health professionals in the first year of life. Considering the number of infants and parents affected every year worldwide, it is surprising that there are so few prospective studies that have investigated factors related to infant RPs and their consequences.

The study by Olsen et al ³ investigated whether problems in regulating crying, sleeping or feeding in early infancy persist across the first year of life. Furthermore, they studied whether RPs and their persistence may be explained by infant factors such as sex, preterm birth or parenting factors such as maternal mental health and parent-child relationship problems. The study was conducted in a community setting in Denmark and utilised data recorded in standard forms by child health nurses (CHN) who repeatedly visited families during the first year. Other data were obtained from registries. Children who had multiple RPs between 2-6 months of age had threefold odds of RPs in late infancy (8-11 months). This persistence was found irrespective of early mental health problems or parent-child relationship problems, although these problems co-occur often with RPs. This study ³ demonstrates that information on RPs and parenting can be recorded within the usual health setting by child nurses. The strength of the study is the large sample size (>2500 children) while limitations are that inter-

observer reliability could not be recorded and the nurses were not just observing but also actively intervening, possibly reducing persistence of RPs.

Confidence in the validity of associations is increased when other studies with different designs (cohort studies, community studies) and methods of recording RPs in different settings (e.g. countries, health systems) produce consistent findings. Firstly, Olsen et al³ findings are consistent with previous studies that reported persistence of RPs from 5-6 months onwards as well as further dysregulation across childhood⁴. Secondly, parenting is considered as a major influence on the developing infant's behaviour regulation. Indeed, parenting and maternal mental health problems were correlated at each assessment period with RPs. However, parenting was not found to be a major factor explaining the moderate persistence of RPs, consistent with previous studies⁵.

Development of crying, sleeping and feeding

Considering the increasing evidence that multiple RPs are highly persistent and associated with adverse mental health outcome, it is important to understand how crying, sleeping and feeding develops and when these behaviours may be considered maladaptive. Human infants are born immature compared to most other mammals. Rather than being able to follow the mother and feed on demand, they have to elicit responses from a parent for survival. Major developmental tasks in the first months of life include adapting to the postnatal environment, ingesting food and gaining weight and developing a sleep-wake-regulation.

Fussing and crying of the infant secures universal and pre-programmed parenting behaviour and triggers the let-down reflex with milk being released from the mother's breast. Fussing and crying follows a characteristic crying curve in the first three months of life with crying peaking at 6 weeks and then reducing by 3 months of age. Infants who do not master this transition in acquiring self-soothing and continue to fuss/cry at significantly higher levels

(e.g. >2 hours per 24 hours after 3 months) have been considered to have a regulatory problem.

Infants are born with sleeping near equally distributed across the first 24 hours but start to develop to sleep less during the day and more during the night within the first few weeks, aided by light alterations and parent interventions and routines. By three months of age, many infants are able to use self-soothing skills and this is predictive of long night time sleep⁶. Feeding is essential to secure survival with human infants doubling their weight in the first 3 to 6 months. This is entirely driven by food intake. At around 3-4 months infants start to show a preference for salt in food which is low in breast milk and become interested in trying new textures of food. These and other anatomical and physical changes, such in oral-motor skills prepare the introduction of new textures of food and indicate a sensitive period. The findings by Olsen et al.³ indicate that those who have not mastered the postnatal adaptation in crying, sleeping and feeding in the first 2-3 months as outlined above are at increased risk to continue to show poor regulatory control.

Implications for clinical practice

The major practical implications are that health practitioners working with infants and parents need to provide guidance and assistance well before RPs develop into disorders. There is a major need to educate parents on how to support infants in regulatory adaptation. For millennials this may include providing relevant information on the normal development of crying, sleeping and feeding and advice on regulatory problems using e-health applications on their smartphones⁷. The core issue of infants with regulatory problems is that they have problems in regulating states such as being able to stop crying, soothe themselves back to sleep or overcome neophobia to new tastes and textures. Infants who have problems with internal regulation at 2-3 months require more external control to help them to learn to self-

regulate. This should include clear and predictable routines and parenting that allows infants space to try self-regulation, i.e. differential responsiveness. Waiting a few minutes before intervening when crying or learning to fall asleep without parents tricking them by feeding or rocking allows for self-soothing. This approach is comparable to parents providing appropriate support when supervising homework in older children. Always soothing the baby immediately or tricking them into sleep is comparable to parents doing the homework for their child rather than for the child to learn how to do homework and generalise to future tasks. Some parents voice concern that providing challenges to babies may impair attachment or emotional development. However, long term studies have shown that differential responding to infants has no adverse effects on their emotional development or infant-parent relationship ⁸. Early interventions using methods of behavioural management have been found to be acceptable to most parents, reduce crying and sleeping problems and the distress for parents ⁹. Prevention may be even better than cure to reduce repeated GP consultations in the first place. Surprisingly, prevention strategies have rarely been evaluated and randomised controlled trials of prevention approaches are lacking ⁷.

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