Infantile colic: more than the mother

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Infantile colic is diagnosed in a seriously fussy or colicky infant who is otherwise healthy and well fed but has paroxysms of irritability and fussing or crying for more than 3 h a day, for more than 3 days a week for more than 3 weeks. Thus, the clinical diagnosis is based on the children’s crying behaviour.1 2 Pathogenesis of infantile colic is unclear but may be related to food allergy, flatulence, intestinal hormonal imbalances, parental factors and deregulation of the autonomic nervous system.3 4

In a recent prospective single blind controlled study on the effects of minimal acupuncture in infantile colic it was found that light needling (minimal acupuncture) at LI4 significantly reduced the rated crying intensity as compared with the control group. Pain-related behaviour, such as facial expression, was also significantly less pronounced in the light needling group as compared with the control group after treatment. The parents of treated infants rated the light needling as more effective in improving symptoms than parents of infants in the control group.1 These results were supported by Landgren and collaborators in 2010 who confirmed that minimal acupuncture shortened the duration and reduced the intensity of crying in infants with colic.5 In a case series study of 913 infants with colic, parents rated their impression of the infants’ general colic symptoms including crying behaviour as much ameliorated in 76% of cases.2

In the paper by Yusuf Ozgur Cakmak it is suggested that infantile colic may be due to a shared pathology between the mother and the colicky baby (see page 295).6 It is proposed that the cytokine tumour necrosis factor α (TNFα) in the mother milk influences the baby’s melatonin and serotonin concentrations, resulting in infantile colic. It is also suggested that this may be corrected by giving acupuncture to the breast-feeding mother alone or in addition to the baby. Even if TNFα does play a role, this does not explain why children who are formula fed may suffer from colic.

However, other factors, apart from TNFα, in the mother’s milk may play an important role in baby colic. From this perspective, it is interesting to note that breast milk contains various hormones, such as leptin, ghrelin and adiponectin as well as growth factors.6 Interestingly these substances are absent in milk formulas. This makes leptin, in particular, an interesting candidate to explain anthropometric differences and changes in dietary habits between breast-fed and formula-fed infants with baby colic. Leptin contributes to the complex network of factors controlling infant development, especially during the first stages of lactation, and it also contributes to interaction with the immune system.7 Acupuncture has been reported to modulate the concentrations of leptin and ghrelin.8

We and other have suggested that the effects of acupuncture in infantile colic may be related to modulation of autonomic activity.1 2 4 Low baseline activity has been shown to be associated with risk conditions for infants such as prematurity and depression. Preterm infants exhibit lower baseline vagal activity than full-term infants, and infants who have lower levels of vagal activity have also been shown to have other neural developmental disorders. It is likely that vagal stimulation promotes growth (weight gain) and neural maturation in preterm infants, modulating the sympathetic and parasympathetic activity and thereby ‘normalising’ gastric motility. Possibly, a similar effect may be obtained by inhibiting the sympathetic tone, thereby increasing the relative influence of the vagal activity. Hypothetically, acupuncture results in an increase in sympathetic tone during needling which is followed by a decreased sympathetic tone and an increased parasympathetic tone, resulting in increased (synchronised) gastrointestinal functioning in children with baby colic.

One of most important aspects of the challenging hypothesis of Yusuf Ozgur Cakmak is that in the future one needs to consider the content of the milk of the breast-feeding mother and its possible susceptibility to acupuncture. We agree that this aspect should be examined in future trials on acupuncture in baby colic, possibly taking leptins and ghrelin into account.

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