## **Research letter**

## Infantile haemangiomas do not occur more frequently in children with congenital melanocytic naevi

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DEAR EDITOR, Infantile haemangioma (IH) is a very common benign vascular tumour with a reported incidence of 4-10% in infants,<sup>1</sup> and no clear genetic basis described as yet.<sup>2</sup> Congenital melanocytic naevi (CMN) are benign melanocytic tumours present in 1% of newborns, which when multiple are caused by post-zygotic mutations in the gene NRAS in the majority of cases,<sup>3</sup> and when single, carry various somatic mutations where causality is difficult to prove.<sup>4-6</sup> Melanocytic and vascular anomalies can coexist in the condition phakomatosis pigmentovascularis (PPV), and the same genetic mutation is responsible for both cutaneous lesions;<sup>7</sup> however, these do not involve either CMN or IH. Moreover, the vascular lesion in PPV is considered congenital and malformative as CMN, and not proliferative and acquired as IH.8 A case series of six patients presenting with both CMN and IH has been reported previously, where the authors hypothesized that this co-occurrence might be more common than expected by chance.9

To test this hypothesis we conducted a systematic evaluation of the presence of IH in the cohort of patients with CMN seen in our tertiary referral service over a 10-year period between March 2006 and February 2016. All children were examined by the same physician, and data were collected prospectively. We included in this analysis only children less than 3 years of age at the examination date, as the natural history of IH is to spontaneously involute during the first few years of life.

A total of 244 patients with CMN under the age of 3 years were seen in this time period, with a mean and median age of 0.78 years and 0.53 years, respectively. Of these, 142 were females, giving the same male : female ratio of 1 : 1.4 as has previously been reported for our CMN cohort.<sup>10</sup> Fourteen patients were recorded as having an IH (5.7%), compatible with prevalence figures for the general population. Furthermore, the characteristics of those with an IH mirror those of the general population, as the male : female ratio for those with IH and CMN was 1 : 6. Table 1 shows the clinical characteristics of the patients with CMN and IH is too small to perform a statistical comparison of the severity of CMN phenotype, but clinical phenotyping data are shown in Table 1.

This systematic study of the prevalence of IH in a cohort of patients with CMN has found no increase above that of the normal population, and a sex ratio in line with what we would expect for IH alone. This study does not support a connection at a genetic level between CMN and IH, either at germline predisposition or at somatic mutation level.

 Table 1 Clinical characteristics of patients with congenital melanocytic naevi (CMN) with and without infantile haemangioma (IH)

|                                 | Patients with<br>CMN, n (%) | Patients with<br>CMN + IH, n (%) |
|---------------------------------|-----------------------------|----------------------------------|
| Sex                             |                             |                                  |
| Female                          | 130 (56.5)                  | 12 (85.7)                        |
| Male                            | 130(38.3)<br>100(43.5)      |                                  |
| Total                           | 230 (100)                   | 2(14.3)<br>14(100)               |
|                                 | 230 (100)                   | 14 (100)                         |
| Projected adult size<br>< 10 cm |                             | 1(71)                            |
|                                 | 58 (25·2)                   | $1(7 \cdot 1)$                   |
| 10–20 cm                        | 45 (19·6)                   | 3 (21.4)                         |
| 20–40 cm                        | 52 (22·6)                   | 4 (28.6)                         |
| 40–60 cm                        | 25(10.9)                    | 3(21.4)                          |
| > 60 cm                         | 39 (17)                     | $1(7 \cdot 1)$                   |
| Multiple small or medium        | 7 (3)                       | 2 (14·3)                         |
| Missing                         | 4 (1.7)                     | 0                                |
| Approximate total number of     |                             |                                  |
| 1                               | 34 (14.8)                   | 0                                |
| 2-9                             | 55 (23.9)                   | 2 (14.3)                         |
| 10-19                           | 33 (14.3)                   | 2 (14.3)                         |
| 20-50                           | 33 (14.3)                   | 0                                |
| 50-100                          | 25 (10.9)                   | 0                                |
| 100-200                         | 17 (7.4)                    | 2 (14.3)                         |
| > 200                           | 4 (1.7)                     | 1 (7.1)                          |
| Missing                         | 29 (12.6)                   | 7 (50)                           |
| Location of principal CMN       |                             |                                  |
| Face                            | 17 (7.4)                    | 0                                |
| Scalp                           | 21 (9.1)                    | 1 (7.1)                          |
| Neck                            | 1 (0.4)                     | 0                                |
| Trunk                           | 80 (34.8)                   | 3 (21.4)                         |
| Limb                            | 26 (11.3)                   | 3 (21.4)                         |
| Scalp, neck and trunk           | 8 (3.5)                     | 0                                |
| Face and scalp                  | 16 (7.0)                    | 0                                |
| Multiple                        | 4 (1.7)                     | 1 (7.1)                          |
| Missing                         | 57 (24.8)                   | 6 (42.9)                         |
| Location of haemangioma         | . ,                         | · · /                            |
| Face                            |                             | 1 (7.1)                          |
| Head and neck (nonfacial)       |                             | 0                                |
| Trunk                           |                             | 6 (42.9)                         |
| Extremity                       |                             | 3 (21.4)                         |
| Missing                         |                             | 4(28.6)                          |

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