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A randomized, double-blind, placebo-controlled of vitamin D3 for Irish children with asthma

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Vitamin D deficiency (VDD) and asthma-incidence/severity share many common risk factors¹. Vitamin D has a number of biological effects that are likely important in regulating key mechanisms in asthma, including immunomodulatory effects as well as altering airway hyperresponsiveness, pulmonary function, airway smooth muscle-remodeling and response to anti-asthma therapy⁽²⁾. Thus, VDD may result in increased prevalence and severity of childhood asthma.

In Winter 2013–2014 we recruited 43 children (23 male), aged 5–15 (mean 8·7 y) with a mean body mass index of 19·9 kg/m² (13–32·6) all previously diagnosed with asthma (Dublin, Ireland, 53°N). We assessed vitamin D status (25[OH]D) PTH, PO₄, calcium, IgE, CRP, WBC + differential and asthma control. These children were randomized to either 2,000iu vitamin D₃/day or placebo for 15 weeks.

Mean 25(OH)D was 51 nmol/L (24–80). According to the IOM guidelines, 21 children had deficient 25(OH)D levels (<50 nmol/L), while 22 had sufficient 25(OH)D levels (>50 nmol/L). There was no significant difference in demographics (age, BMI), serum markers (PTH, PO₄, IgE, CRP, WBC) or self reported measures of asthma control (Asthma Control Test or Paediatric Asthma Quality of Life Questionnaire) between the VDD group and the vitamin D sufficient group. However, pulmonary function was significantly higher in the vitamin D sufficient group, including FVC% (66·3 vs. 96·1%; $p = 0·03$) and FEV₁% (92·85 vs. 101·9%; $p = 0·46$)

Our preliminary, baseline data indicate that vitamin D sufficiency may be important for pulmonary function in asthmatic children.

1. Litonjua AA, Weiss ST (2007) *J Allergy Clin Immunol Nov* **120**, 1031–5.

2. Banerjee A, Damera G, Bhandare R *et al.* (2008) *Br J Pharmacol* **155** 84–92.