

# Lucina

Evidence from small trials suggests that early psychosocial intervention is beneficial for children with autism. Now (*Lancet* 2010;**375**:2152–60; see also Comment, *ibid*: 2124–5) researchers in the UK have assessed a parent-mediated communication-focused treatment for children aged 2–<5 years with core autism. The Preschool Autism Communication Trial (PACT) intervention was provided in one-to-one 2 hour sessions between therapist and parent with the child present and targeted social interactive and communication impairments. Sessions were every 2 weeks for 6 months and then monthly for another 6 months. A total of 152 children were randomised to the PACT intervention plus usual treatment or usual treatment only (controls). After 13 months there was no significant difference between the groups in change in symptom severity measured using the Autism Diagnostic Observation Schedule-Generic (ADOS-G) scale. The PACT intervention did, however, have a favourable effect on parent-child social communication. These researchers do not recommend adding PACT to usual treatment for children with autism.

After the eradication of wild-type polioviruses it will be necessary to continue to use inactivated poliovirus vaccine (IPV) to guard against disease caused by vaccine strains and from immunodeficient people who continue to excrete live virus. Two papers in the *New England Journal of Medicine* (2010;**362**:2351–9 and 2360–9) describe the use of small doses of IPV in Oman to reduce costs and an outbreak of paralytic disease caused by circulating vaccine-derived poliovirus (cVDPV) type 2 in Nigeria. In Oman a total of 400 infants were randomised to receive either standard full-dose immunisation with intramuscular trivalent IPV or fractional (one-fifth) doses by intradermal injection via a jet device, each at 2, 4, and 6 months of age. All infants in the full-dose group seroconverted to all three viral types and in the fractional dose groups the seroconversion rates for type 1, 2, and 3 were 97.3%, 95.7%, and 97.9%. The titres achieved were lower in the fractionated-dose group. After subsequent challenge with monovalent oral type 1 poliovirus vaccine the virus was excreted 7 days later by 74.8% in the fractional-dose group and 63.1% in the full-dose group. In Nigeria between 1 January

2005 and 30 June 2009 there were 3660 identified cases of acute paralytic poliomyelitis, 63% associated with wild-type poliovirus (WPV) type 1, 29% with WPV type 3, and 8% with cVDPV type 2. (Type 2 WPV was last isolated in October 1999 in India). The clinical severity was similar with cVDPV and with WPV. Use of trivalent oral vaccine was followed by a reduction of type 2 cVDPV cases in Nigeria from 138 in the first half of 2009 to 10 in the second. Fractionated-dose IPV may be useful in developing countries and disease due to cVDPV may be overcome by use of trivalent oral vaccine and, in future, of monovalent or bivalent types 1 and 3 oral vaccines.

A UK case-control study based on the national cancer registry and the national birth register (*BMJ* 2010;**340**:c3037; see also editorial, *ibid*:c3015) has provided no support for suggestions that living near a mobile phone base station during pregnancy might increase the risk of cancer in early childhood among the offspring. With 1397 cases of cancer aged 0–4 years and 5588 controls matched by sex and date of birth there were no differences between cases and controls in mean distance of birth address from a macrocell base station, total power output of base stations within 700 m of birth address, or modelled power density. Between the lowest and highest exposure categories there were no significant differences in the incidence at ages 0–4 years of all cancers, brain and central nervous system cancers, or leukaemia and non-Hodgkin's lymphoma.

Twin and family studies suggest that there may be a large genetic component to vitamin D deficiency with heritability estimates of up to 50% or more. Apart from the rare mendelian disorders associated with functional vitamin D deficiency, little is known about common genetic variants that may affect vitamin D status in the general population. A genomewide association study (*Lancet* 2010;**376**:180–8; see also Editorial, *ibid*:142 and Comment, *ibid*:148–9) has identified three, and possibly four, relevant genetic loci. The study included almost 34000 people of white European origin from 15 cohorts in Europe and North America. The loci associated with 25-hydroxyvitamin D concentrations were on chromosomes 4p12, 11q12, 11p15, and (less well established) 20q13.

People with a high genotype score (combining the first three of these variants) had twice the risk of vitamin D insufficiency compared with people with a low genotype score. The genes identified were *GC* (the gene encoding vitamin D binding-protein), *DHCR7* (encoding 7-dehydrocholesterol (*7-DHC*) reductase, the enzyme responsible for the conversion of 7-dehydrocholesterol to cholesterol, an important stage in the synthesis of vitamin D<sub>3</sub> on exposure to sunlight) *CYP2R1* (encoding the liver 25-hydroxylase *CYP2R1* (encoding the liver 25-hydroxylase *CYP2R1* that is possibly responsible for converting vitamin D into 25-hydroxyvitamin D), and *CYP24A1* (encoding 24 hydroxylase, a key degradation enzyme for both 25-hydroxyvitamin D and 1,25-dihydroxyvitamin D). (*DHCR7* is the gene involved in Smith-Lemli-Opitz syndrome but the vitamin D status of people with that syndrome is not known.) Mutations at these sites may be common determinants of vitamin D status in people of white European origin. Their importance in people of other races remains to be established.

A multicentre US randomised trial in adults and children with poorly controlled type 1 diabetes (*New England Journal of Medicine* 2010;**363**:311–20. See also editorial, *ibid*:383–4) has shown better glycaemic control with sensor-augmented insulin-pump therapy than with multiple daily injections and conventional glucose monitoring. The trial included 485 patients, 329 adults and 156 children. From a mean glycated haemoglobin value of 8.3% at baseline the absolute reduction by 12 months among adults was 1.0 percentage point (pump) and 0.4 percentage points (injections). Among children there was a reduction of 0.4 percentage points in the pump therapy group and an increase of 0.2 percentage points in the injections group. The proportions reaching a target glycated haemoglobin level of 7% or less were 34% vs 12% among adults and 13% vs 5% among children. American Diabetes Association targets for glycated haemoglobin were reached by 44% vs 29% of children and adolescents. Rates of hypoglycaemia were similar with the two modes of therapy and in adults and children. The use of a glucose sensor and an insulin pump may improve the control of difficult diabetes.