

## Clippings

### ❑ Serotonergic Function in Children with Attention Deficit Hyperactivity Disorder—Relationship to Later Antisocial Personality Disorder

Disturbance of central nervous system serotonergic function has been associated with aggressive behaviour in adults; this relationship is less clear in childhood and adolescence. A prospective study of children with attention-deficit hyperactivity disorder (ADHD) was done at Department of Psychology, Queens College, City University of New York. This study examined the prospective relationship between serotonergic function measured in childhood and the later emergence of antisocial personality disorder. Researchers assessed hormonal response to fenfluramine, an index of serotonergic function in 58 children with attention-deficit hyperactivity disorder between 1990 and 1997 when they were aged 7-11 years. Approximately nine years later these individuals were evaluated for antisocial personality disorder. Lower serotonergic responsivity assessed in childhood predicted the development of antisocial personality disorder. ( $t(56) = 2.25, P = 0.028$ ). This study showed that those with lower childhood serotonergic function were more likely to develop antisocial personality disorder as adults at 9-year follow-up. (Br J Psychiatr 2007; 190: 410-414)

**Comment:** These results provide a critical link between the child and adult literature on the covariation of impulsive aggression and serotonergic function and suggest a potential explanation for inconsistencies in the childhood literature.

### ❑ Circulating Stem Cells in Extremely Preterm Neonates

This is the era of the new treatment possibility in form of stem cell therapy and we come across stories about stem cells here and there. A lot of research activity is also going on in this field. Various sources of stem cells are being explored and scientists are working to find out easier and less expensive means to get stem cells for therapeutic purposes.

Researchers at Department of Pediatrics,

Division of Perinatal Medicine, Yale University School of Medicine, New Haven, USA tried to find out novel source of stem cells. The aim of the study was to measure circulating CD34+ cell levels in premature neonates and to correlate the initial CD34+ counts with measures of pulmonary function and neonatal morbidity.

CD34+ cell counts were measured in the peripheral blood of preterm neonates (gestational ages 24-32 weeks) ventilated for respiratory disease at <48 h of life, and at the start of the 2nd, 3rd and 4th weeks of life. Data pertaining to neonatal demographics and short-term outcomes were collected. Pulmonary function tests were performed to coincide with CD34+ sampling. Thirty preterm neonates with median gestational age of 24 weeks and birth weight of 641 g were analysed. A mean of 99.4 CD34+ cells per microliter was observed in the 1st week of life with a decline to 54.4 cells per microliter by the 4th week. An inverse correlation between initial CD34+ count and gestational age ( $p = 0.01$ ) was observed. No significant correlations were observed with measures of pulmonary function or neonatal morbidities. (Acta Paediatrica 96(4), 521-525)

**Comment:** Extremely premature neonates have remarkably high levels of CD34+ cells in their peripheral blood at birth. Umbilical cord blood from this population may potentially provide an abundant source of hematopoietic stem and progenitor cells for therapeutic purposes.

### ❑ Infants with Bronchiolitis may Benefit More from Albuterol

Bronchiolitis is responsible for many hospital admissions of infants. It is the commonest cause of hospital admission in this age group. There are two drugs in general use to treat this condition, epinephrine and albuterol, and there is some controversy and passion involved in the choice of medication. In a paper presented at the 2007 Society for Academic Emergency Medicine (SAEM) annual meeting, a double-blind randomized clinical trial involving over 700 infants over a three year period was presented with some surprising findings.

Although many smaller studies have shown either no difference or an advantage to epinephrine, this surprising result of a small but real advantage in using albuterol may force physicians to reassess their treatment choices. (Academic Emergency Medicine, 2007; 14: 5S)

#### ❑ **Probiotic Supplements May Reduce Risk for Necrotizing Enterocolitis in Preterm Neonates**

Researchers in Western Australia aimed to systematically review randomised controlled trials evaluating efficacy and safety of any probiotic supplementation (started within first 10 days, duration = 7 days) in preventing stage 2 or greater necrotising enterocolitis in preterm neonates (gestation <33 weeks) with very low birthweight (<1500 g).

The investigators searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, and CINAHL databases, and proceedings of Pediatric Academic Society meetings (from 1980) and Pediatric Gastroenterology conferences (from 1980). Of the 12 randomized controlled trials identified, 7 were eligible for inclusion in the analysis, enrolling a total of 1393 subjects. Meta-analysis using a fixed-effects model estimated a lower risk for necrotizing enterocolitis in the probiotic group than in the control group (relative risk [RR], 0.36; 95% confidence interval [CI], 0.20-0.65)

Risk for sepsis was similar in both groups (RR, 0.94; 95% CI, 0.74-1.20), but risk for death was lower in the probiotic group (RR, 0.47; 95% CI, 0.30-0.73). Compared with controls, the probiotic group had a significantly shorter time to full feeds (weighted mean difference, -2.74 days; 95% CI, -4.98 to -0.51). The remarkably consistent results, despite the distinct differences in dose, timing, and type of organisms used, suggest that substantial latitude might be available in the choice of an effective probiotic regimen in the design of further trials. (Lancet 2007; 369: 1578-1580, 1614-1620)

**Comment:** The body of evidence for using probiotics to prevent necrotizing enterocolitis is growing fast. The short-term and long-term safety of probiotics needs to be assessed in large trials. Unanswered

questions include the dose, duration, and type of probiotic agents (species, strain, single or combined, live or killed) used for supplementation. If a large well-designed trial confirms this finding, it could make a very strong case for the routine use of probiotics in preterm neonates. However, since prematurity is the single most important and unpreventable risk factor, probiotic supplementation alone might not turn out to be the panacea for prevention of this illness in preterm neonates.

#### ❑ **MRS shows Promise as Noninvasive Means to Determine Fetal Lung Maturity**

Researchers at the University of California-San Francisco performed high resolution MR spectroscopy (MRS) on 15 amniotic fluid samples for evaluation of fetal lung maturity between 34 and 40 weeks gestation and analyzed using trimethylsilyl-propionic acid (TSP) as a reference standard.

Currently, the standard for determining fetal lung maturity involves obtaining amniotic fluid and evaluating the fluid for the surfactant to albumin (SA) ratio. The amniotic fluid is obtained via amniocentesis, an invasive procedure with risks including infection and preterm labor. Researchers found that choline values greater than 49 mg/g indicate lung maturity on MRS.

Researchers noticed a trend between increasing SA ratio with increasing choline concentration in amniotic fluid. (News released on line ahead of publication by the American Journal of Roentgenology on 4th May 2007 and presented during the American Roentgen Ray Society annual meeting on 10th May 2007 at Orlando, FL, USA).

**Comment:** If this work is successful, we could potentially use MRS as a non-invasive test for fetal lung maturity and spare pregnant women and their fetuses the risks of amniocentesis.

#### ❑ **Childhood Obesity Intervention shows Promising Results**

Shape Up Somerville: Eat Smart. Play Har™ a community-based environmental change intervention to prevent obesity in culturally diverse, early elementary school children was launched in Somerville, Massachusetts, USA to reduce the excessive weight gain in these children with help

from all concerned like parents, teachers, school food service providers, health care providers and policy makers, as well as city departments, before-and-after school programs, restaurants, and local media outlets to provide and promote healthy eating options and physical activity among these children.

The researchers used BMI-z score (or BMI-for-age percentile) to report a reduction in weight gain among children who participated in the Shape Up Somerville (SUS) intervention, as compared to children in two socio-demographically similar communities in Massachusetts who did not receive the intervention. The researcher said - "On average, SUS reduced approximately one pound of weight gain over eight months for an eight-year-old child. This may seem small for an individual, but on a population level this reduction in weight gain, observed through a decrease in BMI z-score, would translate into large numbers of children moving out of the overweight category. Such a reduction is important given today's obesigenic environment where the shifts continue to be observed in the opposite direction."

The intervention went well beyond the Somerville schools. Parents and community members were encouraged to participate through school, after school, and community events. There were parent forums to engage members of the four major language communities, newsletters with health tips, walking contests, traffic calming campaigns, and coupons for healthy foods. The SUS team also worked with school and community officials to establish a city employee fitness and wellness benefit. School nurses, pediatricians, and family physicians were trained to address issues of overweight and obesity among children. SUS also collaborated with 21 local restaurants to develop the SUS stamp of approval, which indicates that the restaurant offers healthy menu options. (Obesity 2007; 15(5))

**Comment:** Childhood obesity is no more a problem of developed world, and it is becoming a major health problem for children in India also.

We must start early interventional program to curb it. Given the intractable nature of the condition once established, proactive strategies that begin during childhood are needed to prevent overweight.

We can also take the same route of co-operation between various agencies and common people to reduce this burden on child's health and society at large.

#### ❑ Genetic Factors Influence Response to Varicella Vaccine

We all know that a few children come across Chickenpox infection in spite of vaccination. The immune response-antibody production-of some children after receiving the varicella vaccine is very strong, while for others, the immune response is weaker.

Siblings show similarities in immune response following varicella vaccine administration, suggesting that the wide range of antibody titers generally seen after immunization may have a genetic component. A study of 151 biologic sibling pairs was done in USA to determine the genetic factor for this.

The concordance of 6-week postimmunization antibody titers was evaluated among these pairs and all 30,477 unrelated non-sibling pairs created from within the same cohort.

The team found that there was a clustering of sibling antibody titers and that they were quantitatively closer together than in unrelated individuals.

The researchers estimated that the heritability of the antibody response was 45%, signifying that about 45% of the variation in response is genetic in origin.

Although this is considerably less than has been reported for other vaccines such as measles (88.5%), say the investigators, the proportion is in line with that for other diseases such as rubella (45.7%) and diphtheria (49%). (Pediatr Infect Dis J 2007; 26: 300-305)

**Comment:** Further studies delineating the biologic basis for familial clustering, could lead to a better understanding of critical factors involved in the immune response to varicella vaccine.

#### ❑ The effect of a prolonged time interval between antenatal corticosteroid administration and delivery on outcomes in preterm neonates

This study was undertaken to determine whether

the neonatal benefit of a single complete course of antenatal corticosteroids diminishes when delivery is remote from administration (>14 days).

This retrospective two center cohort trial included women who received a single complete course of antenatal corticosteroids and delivered a viable singleton infant between 26 and 34 weeks of gestation. Patients were divided into 1 of 2 groups on the basis of the interval from first corticosteroid dose to delivery (2-14 days and >14 days). Neonatal outcomes among treatment groups were stratified by gestational age at delivery (<28 weeks, ≥28 weeks). Regression models were used to control for potential confounders.

Three hundred fifty-seven pregnancies were included, of which 98 women delivered at >14 days after antenatal corticosteroids. Neonates at ≥28 weeks of gestation and who delivered at >14 days after antenatal corticosteroids were more likely to require surfactant therapy (60% vs 48%; P = 0.02)

and to require ventilatory support for >24 hours (58% vs 46%; P = 0.02). Differences in outcomes between groups remained in regression models that were controlled for confounders. There was no significant difference between treatment groups for neonates who delivered at <28 weeks of gestation. Rates of survival without chronic lung disease and intraventricular hemorrhage were similar between groups.

**Comment:** A time interval of >14 days between the administration of antenatal corticosteroids and delivery is associated with an increased risk for ventilatory support and surfactant use in neonates who deliver at >28 weeks of gestation. This message should reach our obstetrician friends!

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