

Neurotoxicity from perinatal exposure to aluminum in IV feeding tubes

A total of 227 premature infants (gestational ages < 34 weeks; birth weights < 1850 g) were randomly assigned to receive either standard or specially constituted, aluminum-depleted intravenous (IV) feeding solutions. All infants required IV feeding before they could begin enteral feeding. The neurologic development of the 182 surviving preterm infants who could be tested was assessed by use of the Bayley Scales of Infant Development at 18 months of age.

The mean ($\pm$ SD) Bayley Mental Development Index was 95 ± 22 for the 90 infants who received the standard feeding solution, as compared with 98 ± 20 for the 92 infants who received the aluminum-depleted solution ($P = .39$). In a planned subgroup analysis of infants in whom the duration of intravenous feeding exceeded the median and who did not have neuromotor impairment, the mean values for the Bayley Mental Development Index for the 39 infants who received standard solutions and the 41 infants who received the aluminum-depleted solutions were 92 ± 20 and 102 ± 17 , respectively ($P = .02$). The former were significantly more likely (39% vs 17% of the latter group; $P = .03$) to have a Mental Development Index of less than 85, increasing their risk of subsequent education problems. For all 157 infants without neuromotor impairment, increasing aluminum exposure was associated with a reduction in the Mental Development Index ($P = .03$), with an adjusted loss of one point per day of IV feeding for infants receiving the standard solutions.

Based on these findings, the authors conclude that in preterm infants, pro-

longed IV feeding with solutions containing aluminum is associated with impaired neurologic development.

Bishop NJ, Morley R, Day JP, Lucas A: Aluminum neurotoxicity in preterm infants receiving intravenous-feeding solutions. *N Engl J Med* 1997;336:1557-1561.

Epidural corticosteroid injections for sciatica due to herniated nucleus pulposus

In a randomized, double-blind trial, three epidural injections of methylprednisolone acetate (80 mg in 8 mL of isotonic saline solution) or isotonic saline solution (1 mL) were administered to 158 patients. All patients had sciatica resulting from a herniated nucleus pulposus and had Oswestry disability scores higher than 20 (on a scale of 1 to 100, with scores of 20 or less indicating minimal disability, and higher scores, greater disability).

At 3 weeks, the group receiving the corticosteroid injections had improved by a mean of -8.0 compared with a mean improvement of -5.5 in the group receiving the placebo (95% confidence interval, -7.1 to 2.2). The only differences in improvements that were significant between the two groups were in the finger-to-floor distance ($P = .006$) and sensory deficits ($P = .03$). These differences were greater in the group treated with the methylprednisolone. After 6 weeks, the only significant difference was the improvement in leg pain, which was greater in the corticosteroid-treated group ($P = .03$).

No significant differences existed between the two groups after 3 months. The Oswestry score had improved by a mean of -17.3 in the methylprednisolone-treated group and -15.4 in the group receiving the placebo (95%

confidence interval for the difference, -9.3 to 5.4). At 12 months, the group receiving the methylprednisolone had a 25.8% probability of back surgery compared with a 24.8% probability of back surgery in the group receiving the placebo ($P = .90$).

Despite the fact that epidural injections of methylprednisolone may afford short-term improvement in leg pain and sensory deficits in patients with sciatica due to a herniated nucleus pulposus, such treatment offers no significant functional benefit and it does not reduce the need for surgery.

Carette S, Leclaire R, Marcoux S, et al: Epidural corticosteroid injections for sciatica due to herniated nucleus pulposus. *N Engl J Med* 1997;336:1634-1640.

HRT and coronary artery calcification

In a study to determine the association between the use of hormone replacement therapy (HRT) and coronary calcium, double helical computed tomography was used to compare the prevalence and extent of coronary calcium in 41 postmenopausal women who were on HRT from the first year of menopause and 37 age-matched control subjects.

The rate of smoking, hypertension, a positive family history, and hypercholesterolemia was similar for both groups. Coronary calcification was seen in 28.2% of the 78 women studied. The HRT users had a significantly lower prevalence of coronary calcium: 6 (14.6%) of the 41 compared with 16 (43.2%) of the 37 nonusers ($P < .01$). The recorded risk factors had no effect on the prevalence of coronary calcium. Stepwise logistic regression analysis,