

formation) $p = .03$]. Fasting and 2 hour post prandial glucose levels, fasting insulin levels, and HbA1C remained in the normal range. The authors concluded that treatment with rhGH at the doses used has beneficial effects in prednisone-dependent growing children, on body composition without detrimental effects in carbohydrate metabolism or the intermediate metabolism of substrates. Larger studies will be needed to assess long term safety and efficacy.

Mauras N, et al. *Metabolism* 2002;51:127-135.

Editor's Comment: *This well designed study provides encouraging data that rhGH can overcome the anti-anabolic effects of prednisone, enhance the growth rate, and do so without measurable toxicity over 6-12 months. Of particular interest was the disappointing observation that there was no change in the disease activity as determined by the Crohn's Disease Activity Scale adapted for pediatric subjects. There were significant increases in serum levels of IGF-1 and IGF.BP3. The authors suggest that a state of "functional" GH deficiency caused by chronic steroids may be overcome with rhGH administration. It is important to remember that rhGH has not been effective in treating patients with IBD who are not on glucocorticoid treatment. Also of importance is to recall the reports of Rivkees et al and Allen et al who reported the acceleration of growth in glucocorticoid treated children with significant growth retardation who*

were treated with rhGH. Allen et al reviewed the data of the Genentech National Growth Study in which 83 children with extreme glucocorticoid induced short stature were treated for at least 12 months with rhGH. The authors concluded: (1) growth suppressing effects of chronic GC are counter-balanced by GH therapy; the mean response being a doubling of baseline growth rate, (2) responsiveness to GH is negatively correlated with GC doses, and (3) glycolysated hemoglobin levels increased slightly, but glucose and insulin levels were not altered by GH therapy. These authors summarized: "In a cohort of 83 poorly growing GC-dependent children, we suggest that the growth suppressing effects of GC can be variably overcome by GH. The short term risks of combined GH and GC treatment appear low; potential long term effects require further surveillance and study. Treatment of GC-dependent children with GH remains experimental; children considered for such treatment should be enrolled in studies that facilitate careful monitoring and data analysis." Dr. Mauras and her co-investigators have heeded the suggestion and extended the data. Rivkees et al, Allen et al, and Mauras et al are to be commended for clinical investigation that significantly enhances patient care.

Rivkees SA, et al. *J Pediatr* 1994;125:322-325.

Allen DB, et al. *J Clin Endocrinol Metab* 1998;83:2824-29.

Robert M. Blizzard, MD

Inadequate Leptin Level Negatively Affects Body Fat Loss During a Weight Reduction Program for Childhood Obesity

These authors report findings of body fat loss in 37 female and 45 male overweight children, ages 10.9 ± 3.5 years, during a weight reduction program and correlated the weight loss with plasma leptin levels. The authors note that a large proportion (40-80%) of the variance in BMI can be ascribed to genetic factors; leptin appears to signal adiposity and leptin levels have not been shown to be predictive of successful weight loss. Leptin levels, although found to correlate positively with indices of general obesity, have not been found to be predictive for the success of weight loss in observational, longitudinal studies of dietary intervention. Some studies have shown that low serum leptin at baseline is associated with greater weight loss. Others have shown, in adolescents, that a greater baseline of leptin concentration correlates with weight reduction.

In the current study, fasting plasma leptin levels were determined and subjects were stratified on their leptin Z-score into low leptin (< -2 SD), high leptin ($\geq +2$ SD), or appropriate leptin (≥ -2 to $\leq +2$ SD), prior to their weight loss. Body fat was determined by BMI and skin

fold thicknesses. All subjects participated in a nutritionally balanced meal plan at 60% of the recommended energy allowances for age and sex. Physical activity was monitored, but no attempt was made to alter it. There were no significant differences in physical activity amongst the 3 groups of children stratified by fasting plasma leptin levels. Data was collected at 3 and 6 months which showed that 20 children had high leptin levels, 20 had relatively low leptin levels, and 42 fell in the appropriate leptin level range. There were no statistical differences among the three groups of children at baseline. Mean BMI and skinfold thickness at the end of 6 months were significantly lower than baseline data. BMI reduction was more evident in the subjects with adequate leptin levels but the differences were not statistically significant. Reduction in triceps and subscapular skin folds was also more pronounced in the appropriate leptin production group. The differences in the average of these changes were statistically significant after both 3 and 6 months.

The authors suggest that children with relatively high or low leptin levels are less likely to lose body fat, as determined by skinfold thickness, during a 6 month hypocaloric diet, and that the ability to lose fat may be strictly dependent on genetic and environmental factors. Therefore, when environmental factors are altered, those with hyper or hypo-leptinaemia are less likely to respond to those changes.

Miraglia del Giudice E, et al. *Acta Paediatr* 2002;91:132-135.

Editor's Comment: This is an interesting and important manuscript even though some of the data do not reach statistical significance. Researchers have been unable

to show that fasting plasma leptin levels are indicators of the probable success or failure of weight-loss programs. Recent data suggest that, in adults, lifestyle changes including weight loss, and increased physical activity can significantly reduce the risk of Type II Diabetes in high-risk adults. The information in groups of patients who might be more amenable to weight loss programs is therefore very important. Further studies are required in order to better understand the etiology of the differences in leptin levels in the 3 groups of children studied by del Giudice. Confirmation of these data would be of great importance.

William L. Clarke, MD

Preterm Infants Born at Less Than 31 Weeks Gestation have Improved Growth in Cycled Light Compared with Continuous Near Darkness

The neonatal intensive care unit environment cannot possibly replicate the womb for all preterm infants. The purpose of this study was to evaluate the effects of cycled light versus near darkness on health and growth of preterm infants. The study was set up as a randomized interventional study comparing infants receiving cycled light from birth, cycled light at 32 weeks post-conceptional age, and cycled light at 36 weeks of post-conceptional age. Infants receiving cycled light at birth and at 32 weeks post-conceptional age gained weight faster than infants not receiving cycled light until 36 weeks (Fig 1). There was no difference among the groups in length of hospitalization stay, or number of ventilator days, but the power was low for these variables. The authors concluded that cycled light had significant weight gain benefits over near darkness in preterm infants.

Brandon DH, et al. *J Pediatr* 2002;140:192-199.

Editor's Comment: The findings of this study confirm the observations of others who reported that cycled light from birth or beginning at 32 weeks post-conception positively influenced weight gain in preterm infants. The positive effects of weight gain in preterm infants were first reported by Mann et al *BMJ* 1986;293:1265-7. However, there have been other reports that suggested that continued bright light is detrimental to the health of preterm infants (*J Perinat Neonat Nurs* 1991;4:47-54 and *Infant Behav Dev* 1995;18:87-95). Since near-darkness has become the standard of care in nurseries, these findings are important. The presence of significant circadian rhythms provided by maternal cycles even while the fetus is in the intrauterine environment suggest that replicating them after birth may be of benefit. *Growth, Genetics and Hormones* published an excellent

review of circadian rhythms written by Dr. Rivkees in Vol 18, No.1, 2002.

Cycled light could be important for human development, in addition to the demonstrated benefits in growth. The effects on weight gain, though significant, might only be one part of the benefit of cycled stimulation mimicking intrauterine life for the preterm infant. Potentially, cycled light may also have a major impact on retinal development and other functions.

Fima Lifshitz, MD

