Trends & Insights for the Endocrine Community

Endocrine news

A Publication of The Endocrine Society

October 2006

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Curbing Bone Loss After Stem Cell Transplant

➤ Rapid and early bone loss occurs after allogeneic stem cell transplantation (alloSCT), prompting researchers to investigate whether the bisphosphonate pamidronate (Aredia®) could reduce this loss. Their findings will be published shortly in ***The Journal of Clinical Endocrinology & Metabolism.****

Peter R. Ebeling, M.D., F.R.A.C.P., and colleagues at the University of Melbourne in Australia used a randomized, multi-center, 12-month prospective design to study intravenous pamidronate (90 mg/month) beginning before conditioning vs. no pamidronate. All 116 patients also received calcitriol (0.25 μg/day) and calcium (1,000 mg/day), which were continued for a second year.

Pamidronate reduced bone loss at the spine (5.6%), femoral neck (7.7%), and total hip (4.9%) at 12 months. However, bone mineral density (BMD) was lower than at baseline—2.8% at femoral neck and 3.5% at total hip sites. Only total hip BMD differences remained significant between the two groups at 24 months. Benefits were restricted to patients who received greater than 10 mg daily prednisolone and cyclosporin therapy for more than 5 months within the first 6 months of alloSCT.

The team found BMD benefits greatest in patients on higher doses of immunosuppressive therapy, but most effects were lost 12 months after stopping pamidronate. The authors suggested more potent bisphosphonates or anabolic therapy using parathyroid hormones as possible ways to durably maintain bone mass in these patients. ■

* Grigg AP, Shuttleworth P, Reynolds J, et al. Pamidronate reduces bone loss after allogeneic stem cell transplantation. *J Clin Endocrinol Metab*, 2006/2007.

Somatostatin's Role in Fish Aggression

➤ Investigation of the physiological bases of aggressive behavior has focused on steroid hormones and, more recently, on serotonergic action in the brain, as well as certain neuropeptides. Somatostatin—initially identified for its effects on growth hormone secretion—is an important regulatory peptide in a variety of physiological contexts. In mammals, five different subtypes of somatostatin receptor (sstR) have been identified and transcripts of four have also been discovered in fish.

In the cichlid fish *Astatotilapia burtoni,* dominant males aggressively maintain a territory and are reproductively active, whereas subordinate males are reproductively suppressed, but grow faster than their aggressive counterparts. Moreover, in dominant males somatostatin immunoreactive neurons in the preoptic area are about four times larger and their size is negatively correlated with growth rate.

Researchers Hans A. Hofmann, Ph.D., and Brian C. Trainor, Ph.D., at Harvard University, manipulated somatostatin function by treating dominant males with somatostatin antagonists or agonists and observing subsequent behavior. They also tested whether any behavioral effects occurred via changes in growth hormone secretion. Furthermore, because castration reduces aggressive behavior in dominant *A. burtoni,* they examined somatostatin receptor mRNA expression in the testes to see if the effects of somatostatin function influence androgen production.

"In dominant male *A. burtoni,* somatostatin may function to contain energetically costly processes such as somatic growth and aggressive behavior," the authors say in their report, to be published shortly in ***Endocrinology.**** "Together, these experiments indicate that aggressive behavior should be added to the growing list of physiological systems modulated by somatostatin." ■

* Trainor BC, Hofmann HA. Somatostatin regulates aggressive behavior in an African cichlid fish. *Endocrinology*, 2006/2007.

PHOTO: CHRISTIAN LANDRY & HANS A. HOFMANN