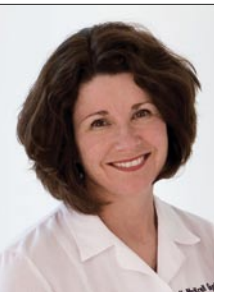

Rickets in 2008

By Dr. Margaret MacKrell Gaglione, FACP

Hard to believe in 2008 that we would have a profound nutritional deficiency present in our society, especially in the Hampton Roads area, with Virginia Beach's sand and sun. One would think that diseases like scurvy, pellagra and rickets are great for "resident pimping" questions rather than valid clinical conundrums. Unfortunately, as the quality of our nutrition declines, and as our degree of adiposity increases, our industrial nation is rapidly becoming a nation of "malnourished" vitamin-deficient obese individuals.

Vitamin D deficiency is of particular interest to me as many of my bariatric patients frequently complain of generalized, poorly localized pain, poor sleep secondary to pain, fatigue and many have been previously diagnosed with fibromyalgia. Granted, for many of these patients, it is hard to tell which occurred first, the symptoms of fatigue or their weight gain; for many it is just a vicious cycle.

Vitamin D deficiency, osteomalacia in adults or rickets in children, leads to the formation of excess, poorly formed bone and weak muscles. In addition to its obvious link to osteoporosis, Vitamin D deficiency has been linked to generalized nonspecific bone and muscle pain, and a higher incidence of cancers, particularly colon cancer. Patients with Vitamin D deficiency may present with fatigue, stiffness or skeletal pain. Later symptoms of more profound deficiency may include proximal muscular weakness, hyporeflexia and paresthesia. Patients with severe Vitamin D deficiency may develop a waddling gait known as Trendelenburg gait secondary to proximal muscle weakness and reduced reflexes without muscle wasting.

Vitamin D, one of the four fat-soluble vitamins, is essential for the proper absorption of calcium from the gut. Often called the "sunshine vitamin," the body can produce Vitamin D from the ultraviolet rays of the sun or absorb it from Vitamin D-fortified foods such as milk, certain dairy, cold-water fish, organ meat and eggs. The increased avoidance of the sun due to the fear of skin cancer, more time spent indoors because of work, avoidance of milk products due to lactose intolerance, higher use of sun block, less consumption of cod, herring, mackerel and organ meat have all increased our risk of Vitamin D deficiency.

Overweight and obese patients are at particular risk also because of their poor nutritional habits, low fortified food intake, fatty liver disease and decreased sun exposure. Vitamin D deficiency is the most common vitamin deficiency in patients who have undergone gastric bypass surgery.

A particular patient of mine comes to mind when discussing Vitamin D deficiency. This gentleman was referred to our practice by his rheumatologist for weight management. He had a diagnosis of class 2 obesity, glucose intolerance, hypertriglyceridemia, fibromyalgia and was on eight medications for pain management to enhance sleep and improve mood. His initial Vitamin D level was 17. In six months, he has lost over **70** lbs., is exercising over 5,000 kcal/week and is off all his pain/mood/sleep medication. His obesity, glucose intolerance, Vitamin D deficiency, fibromyalgia and hypertriglyceridemia have all resolved with his weight loss and his improved exercise capacity.

To check Vitamin D levels, draw the 25 hydroxyvitamin D. Normal levels are 32-100. Additional serological clues to Vitamin D deficiency may be hypocalcemia and elevated serum alkaline phosphate. First choice for the treatment of simple dietary osteomalacia is exposure to sunlight combined with oral Vitamin D. First choice for most deficient patients will be oral Vitamin D_2 (ergocalciferol) at high dose with serum calcium levels being monitored to avoid toxicity. In patients with kidney disease, 1,25-dihydroxycholecalciferol (rocalcitrol) is the first line of replacement.

Dr. Margaret MacKrell Gaglione is the Medical Director of Tidewater Bariatrics in Chesapeake, a practice dedicated to the care of overweight and obese patients. She is a board-certified internal medicine physician and bariatric specialist. She can be reached at (757) 644-6819 or www.tidewaterbariatrics.com. ■