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Recognition of Spine Fractures with IVA™ Impacts Osteoporosis Diagnosis and Treatment

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A recent study presented at the 23rd annual meeting of the American Society for Bone and Mineral Research emphasizes the importance of identifying vertebral fractures in postmenopausal women.

According to the National Osteoporosis Foundation, osteoporosis is responsible for 1.5 million fractures annually in the United States; 700,000 of these are vertebral fractures. A vertebral fracture doubles the risk of hip fracture and increases the risk of future vertebral fractures by five times. Spine fractures also have been linked to a decrease in quality of life and an increase in healthcare costs.

The two primary risk factors for future osteoporotic fractures are low bone mineral density (BMD) and existing vertebral fractures, yet traditional methods of osteoporosis testing measure only BMD. Now advanced bone densitometry systems are available that measure BMD and provide a high-resolution image of the spine for fracture assessment. Considering that most osteoporosis guidelines recommend treatment for those with a vertebral fracture -- regardless of BMD status -- identification of vertebral fractures at the point of care can impact decisions to prescribe therapy.

Dr. Susan Nattrass, Director of the Osteoporosis Research Unit at the PacMed Clinic in Seattle, Washington, conducted a study to assess vertebral fractures and BMD in postmenopausal women. Of particular interest were women with at least one vertebral fracture who did not have an osteoporotic BMD measurement. These patients are candidates for osteoporosis treatment, but based upon their BMD measurement alone, would receive either no treatment or a much less aggressive preventive therapy.

A total of 158 postmenopausal women over age 50 obtained BMD measurements of the AP spine, femoral neck, and total hip by dual-energy x-ray absorptiometry on a Hologic Delphi™ bone densitometer. Patients also were evaluated by Instant Vertebral Assessment™ (IVA), a feature unique to Delphi which uses rapid, low-dose scans to obtain single-energy images of the spine. These high-resolution images can be used to visually identify and grade the severity of vertebral fractures.

Using the World Health Organization criteria, patients were classified as normal, osteopenic (low bone mass), or osteoporotic using the lowest BMD T-score. When IVA results were compared with bone density values, 20% of women classified as normal or osteopenic had at least one vertebral fracture. Therefore, a significant number of postmenopausal women in need of osteoporosis treatment would have been mis-classified using BMD information alone.

"Osteoporosis is a silent disease," states Dr. Nattrass. "Vertebral fractures often are not associated with any clinical symptoms until the patient has suffered a hip fracture or multiple vertebral fractures. With several medications on the market that are proven to reduce fracture risk by 50% in women with existing fractures, IVA can help physicians identify those women who will most benefit from treatment."

Other studies and reports from leading osteoporosis experts have noted the importance of IVA in clinical practice. Dr. Susan Greenspan from the University of Pittsburgh Medical Center collected BMD and IVA results from 482 elderly women without prior knowledge of a vertebral fracture (in press, *Journal of Clinical Bone Densitometry*). In this population, 26% of those needing osteoporosis treatment were missed using BMD measurements alone.

Dr. Harry Genant of the University of California, San Francisco, further supports the use of IVA. In his review published in the *Journal of Clinical Bone Densitometry*, Dr. Genant explains, "The integration of BMD and vertebral fracture assessment in a clinical environment has multiple benefits, including improved risk assessment, improved selection of candidates for intervention, and the potential for improved patient understanding of the consequences of osteoporosis."

IVA technology offers a significant advance in the diagnosis and management of patients at risk for osteoporosis by allowing physicians to identify and treat those who would not be recognized using a bone density test alone. Currently, there are over 650 bone densitometry systems with IVA in use and another 4000 systems that can be upgraded with this feature.

About ASBMR

The ASBMR 23rd Annual Meeting is the preeminent scientific meeting for bone and mineral metabolism. Approximately 5,000 delegates will attend this meeting; more than 1,800 scientific abstracts will be presented. ASBMR is a professional, scientific and medical society established to promote excellence in bone and mineral research and to facilitate the translation of that research into clinical practice.

About Hologic

Hologic, Inc. is dedicated to developing and delivering proprietary X-ray and ultrasound systems that incorporate direct-to-digital radiographic imaging technology for both women's health and general radiographic applications. Hologic's business divisions include: the Hologic Radiographic Systems division encompassing general and digital radiography systems; Direct Radiography Corp., a wholly owned subsidiary and manufacturer of state-of-the-art proprietary flat panel technology called DirectRay®; the Hologic Bone Densitometry division; the Lorad division, specializing in state-of-the-art breast imaging and minimally invasive breast biopsy systems; and Fluoroscans Imaging, a wholly owned subsidiary, manufacturing and marketing state-of-the-art, low intensity, real time X-ray imaging devices.

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