

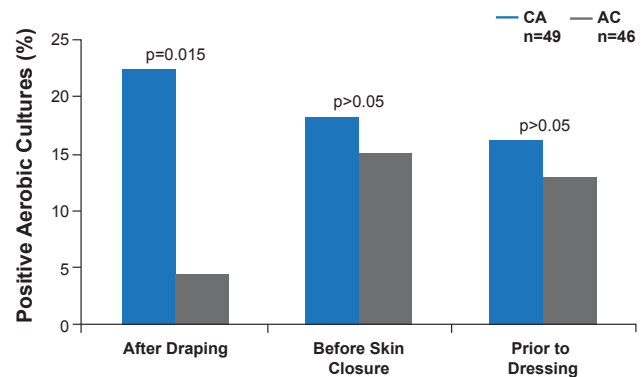
ankle surgeons, and can make for difficult clinical scenarios. Although the skin surface represents one source of pathogens that may contribute to these infections, numerous skin preparation agents are used prior to surgery to reduce the risk of postoperative complications [Ostranderv RV et al. *J Bone Joint Surg Am* 2005].

IA and CG are two commonly used skin preparation agents which have potential synergistic qualities to prevent postsurgical infection. With this in mind, Dr. Hunter and colleagues conducted a prospectively randomized, single-blind study to determine whether the order of applying these two solutions has a significant effect on the residual load of bacterial pathogens after surgical site preparation for foot and ankle surgery.

One hundred patients undergoing surgery of the foot and ankle with a single surgeon were prospectively randomized to two surgical preparation groups. In Group 1 (CA; n=49), patients underwent surgical site preparation consisting of a 4% CG application followed by a 70% IA rinse; this process was repeated and allowed to dry. For patients in Group 2 (AC; n=45), surgical site preparation consisted of IA followed by CG, which was then repeated. Swabs for aerobic bacterial culture were collected from the third web space of each patient's operative foot before surgical site preparation, post skin preparation, before wound site closure, and after wound closure. Patients were followed for 6 months postoperatively to monitor for wound complications. Six patients were excluded from the study due to incomplete bacterial culture data. In both groups, all swabs obtained before surgical site preparation were culture-positive for bacteria. More of the post-skin preparation swabs in the CA group were bacterial culture-positive compared with those in the AC group (18.7% vs 10.9%; Figure 1), but this was not statistically significant ( $p=0.07$ ). However, there was a significant increase in culture-positive post-draping swabs in the CA group compared with those in the AC group (22% vs 4%;  $p=0.015$ ). There was no significant difference between the groups in culture-positive swabs taken before skin closure (18% vs 15%;  $p>0.05$ ) and after skin closure (16% vs 13%;  $p>0.05$ ). One superficial surgical site infection occurred in each group during the first 6 months postoperatively, and both were successfully treated with oral antibiotics.

Dr. Hunter stated that postoperative infection rates following foot and ankle surgery are low, and emphasized that both CG and IA are effective at reducing surgical site bacterial colonization when combined. Although the results from this study showed that applying IA before CG solution more effectively reduces the number of positive bacterial cultures in samples taken after draping, he concluded that the order of application of these agents had no influence on the incidence of postsurgical wound infection.

Figure 1. Positive Culture Swabs Results



AC=70% isopropyl alcohol rinse followed by chlorhexidine application; CA=chlorhexidine application followed by a 70% isopropyl alcohol rinse.

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## Risedronate and Follow-up Quantitative Ultrasound Reduces Refracture in Osteoporosis

Written by Nicola Parry

Emanuele Betti, MD, Università di Pisa, Livorno, Italy, presented results from a randomized trial demonstrating a reduction in subsequent fractures in patients with intertrochanteric fractures who were treated with risedronate and received follow-up care with quantitative ultrasound (QUS) to monitor the existing fracture and bone status.

As life expectancy increases, low energy hip fractures become an increasing public health problem due to the growing size of the elderly population. Osteoporotic fractures are therefore becoming a significant cause of morbidity and mortality worldwide.

Risedronate is an oral bisphosphonate that inhibits osteoclast-mediated bone resorption and modulates bone metabolism, and, in the treatment of osteoporosis, this agent can play an important role in prevention of bone fractures. Additionally, QUS represents a valuable predictor of fracture risk and can also be useful in the management of osteoporosis. Specifically, it can provide information about factors such as bone density, elasticity, microarchitecture that contribute to "bone quality", and therefore has a role to play in monitoring the response to antiosteoporotic treatments.

Prof. Betti and colleagues conducted a randomized trial in the use of QUS to compare the differences in bone mineral density (BMD), bone quality, and the incidence of new low-energy fractures in patients with intertrochanteric fractures treated with risedronate or placebo.



CLINICAL TRIAL HIGHLIGHTS

The study involved 100 female patients who underwent short proximal femoral nail fixation for low-energy hip intertrochanteric fracture. Patients were randomized to receive either risedronate 75 mg (n=51) on 2 consecutive days each month, or placebo (n=49), and received follow-up screening for 1 year to compare differences in BMD between the two groups, and evaluate the incidence of low energy refractures. BMD was measured with QUS, which provided stiffness index derived from the measurement of speed of sound, and broadband ultrasound attenuation.

Patients included in the study were postmenopausal women who had not previously been managed with bisphosphonates, and were independently mobile. Exclusion criteria included diseases known to affect bone metabolism and other serious comorbidities.

At 1-year follow-up, there were significant differences between the two groups in the parameters measured by QUS. These differences correlated with improved bone strength and reduced incidence of low energy refracture (hip, vertebrae, wrist) in patients treated with risedronate, and then placed in a follow-up program to monitor both the current fracture and bone status (Table 1).

Table 1. QUS Parameters and Incidence of Refracture

Postmenopausal Women Treated After Intertrochanteric Fracture (n=100)	Group A (Risedronate) n=51 women	Group B (Placebo) n=49 women
BUA, dB/MHz	1480.09±25.6	1471.04±20.6
SOS, m/s	99.1±6.8	94.8±8.4
SI, %	64.0±9.6	60.2±12
Incidence of low energy refractures, %	1.9	4.1

BUA=broadband ultrasound attenuation; SI=stiffness index; SOS=speed of sound.

In addition to using best practice to treat current fractures in patients with osteoporosis, orthopedic surgeons must also effectively manage the disease to prevent new fractures. Prof. Betti therefore concluded that QUS imaging in patients with fractures enables evaluation of bone mass in this patient population, allowing for the provision of appropriate pharmacological agents as necessary to reduce the risk of new fractures.

## Shared Decision-Making Tools Help Patients Make Quicker Orthopedic Treatment Decisions

Written by Nicola Parry

Kevin J Bozic, MD, MBA, University of California, San Francisco, San Francisco, California, USA, presented data from a randomized controlled trial (RCT), demonstrating that more patients made informed

treatment decisions during their first appointment with an orthopedic surgeon if shared decision-making (SDM) interventions were used [Bozic KJ et al. *J Bone Joint Surg Am* 2013].

Although the concept of SDM is an important philosophy that has been shown to be effective in clinical practice, the use of tools for treatment decisions to enhance decision quality and patient engagement has not yet been widely adopted in orthopedic practice.

Consequently, Dr. Bozic and colleagues designed a RCT in patients with osteoarthritis (OA) of the hip or knee to assess the impact of decision and communication aids on patient knowledge, decision-making efficiency, treatment choice, and patient and surgeon experience.

Patients who were appropriate candidates for hip or knee replacement (n=123) were included in the study and randomized to a SDM intervention group (IG; n=61), or usual care (UC; n=62). Those in the IG received a combination of aids to enhance patient knowledge, question asking, and information recall. Their decision aid was a DVD and booklet detailing the natural history and treatment alternatives for OA of the hip and knee, and comparing the risks and benefits of surgical and nonsurgical options. They also received a telephone consultation with a trained health coach to help them formulate a list of questions for their surgeon into an organized one-page document. Patients in the control group received information in the mail about the surgeon's practice.

Inclusion criteria included a primary diagnosis of OA of the hip or knee, first visit with an orthopedic surgeon for this problem, and no history of a lower-extremity joint arthroplasty. Patients were excluded if they could not read or speak English, or had previously visited another orthopedic surgeon for evaluation of the problem.

The primary outcome was whether patients reached an informed decision during their first appointment. Secondary outcomes included treatment choice, patient and provider satisfaction, and length of appointment time. Ultimately, 61 individuals in the IG, and 62 individuals in the UC group were included in the data analysis.

The results demonstrated that significantly more patients in the IG reached an informed decision during their first orthopedic appointment compared with those in the UC group (58.3% vs 33.3%; p=0.01; Table 1). Additionally, patients in the IG were more confident that they knew what questions to ask their surgeon during the visit (p=0.0034). Following the appointment, there was no significant difference between groups in their treatment choice (eg, surgical or nonsurgical; p=0.48).



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