

## SPECIALTY UPDATE

## What's New in Hand and Wrist Surgery

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The past year proved to be an exciting year in hand surgery. As such, it is my distinct honor and privilege to provide an overview of some of these developments. This Update highlights some of the papers and reports presented at the annual meetings of the American Academy of Orthopaedic Surgeons (AAOS), the American Society for Surgery of the Hand (ASSH), and the American Association for Hand Surgery (AAHS) as well as studies reported in the literature beyond those published in *The Journal of Bone & Joint Surgery*.

**Distal Radius Fractures**

In the management of distal radius fractures, several factors may need to be considered, including the fracture pattern, radiographic alignment, and patient and surgeon characteristics. Park et al. conducted a multicenter, prospective randomized study investigating the role of short versus long arm plaster casts in the treatment of stable distal radius fractures in patients >55 years of age. Assuming a satisfactory reduction (<10° of dorsal angulation from neutral, <2 mm difference in ulnar variance compared with the contralateral side, <1 mm of articular step-off, and satisfactory distal radioulnar joint alignment), patients were randomized at 1 week post-injury to either type of cast for 6 weeks. When assessed at 6 months of follow-up, the groups did not differ significantly with respect to patient demographics, post-reduction radial inclination, radial height, pain, or Disabilities of the Arm, Shoulder and Hand (DASH) scores. Those treated with use of a long arm cast had better maintenance of volar tilt but more shoulder pain and impairment in activities of daily living. The authors, therefore, advocated the use of a short arm cast for stable distal radius fractures for elderly patients<sup>1</sup>.

There is increasing evidence that patients ≥65 years of age tolerate a greater degree of anatomic deformity without functional sequelae after a distal radius fracture. As such, what are

the acceptable radiographic parameters in this patient group to guide decision-making? In their study of distal radius fractures in 190 patients >65 years of age, Symonette and colleagues noted worse Patient-Rated Wrist Evaluation (PRWE) scores at 1 year post-injury when the radial inclination was <20° or the dorsal tilt was >15°. Interestingly, the odds ratio for a poor PRWE score was not significantly related to ulnar variance<sup>2</sup>.

Once a decision has been made to proceed with operative treatment, what should be the fixation of choice? Landgren and colleagues compared the outcomes of 50 patients (mean age of 56 years) treated with fragment-specific fixation or volar locking plates for unstable distal radius fractures. Results at 1 year postoperatively revealed that there was no difference between the 2 cohorts in terms of grip strength, range of motion, or QuickDASH scores, although there was a much higher complication rate among those treated with fragment-specific fixation (52%) compared with a volar locking plate (21%). Despite the groups being comparable with respect to the type of fracture and energy mechanism, it should be remembered that fragment-specific fixation may be more appropriate for highly comminuted fractures that cannot be satisfactorily addressed with volar locking plates<sup>3</sup>.

Given the concern for osteoporosis in older patients, is the use of external fixation a suitable option for this group? Saving randomized 118 patients, aged 50 to 74 years, to either external fixation with or without adjuvant pins or volar locking-plate fixation. After 3 years, there were no significant differences regarding outcomes scores, range of motion, and grip strength. Patients within the volar locking-plate cohort had a higher rate of reoperations (13 of 62 compared with 7 of 56 in the external-fixation group) and had a higher radiographic arthrosis rate (19 of 59 compared with 11 of 53)<sup>4</sup>.

Following treatment of a distal radius fracture, when can a patient safely return to driving? Jones and colleagues prospectively enrolled 23 patients (50 to 85 years of age) with a distal radius fracture who underwent volar plating and therapy 1 to 2 weeks after surgery. Patients underwent an evaluation

*Specialty Update has been developed in collaboration with the Board of Specialty Societies (BOS) of the American Academy of Orthopaedic Surgeons.*

**Disclosure:** The author received a stipend for this work from JBJS. On the **Disclosure of Potential Conflicts of Interest** form, which is provided with the online version of the article, the author checked "yes" to indicate that he had a relevant financial relationship in the biomedical arena outside the submitted work (<http://links.lww.com/JBJS/E634>).

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by a certified driver rehabilitation specialist at 2 and 4 weeks after surgery on a closed course, using a 4-door midsize sedan with automatic transmission. Patients failed the test if they were unable to adequately control the car with both hands or complete the course. Sixteen of 23 patients passed on their first attempt (an average of 18 days postoperatively), 4 passed on the second attempt (31 days following surgery), and 3 did not complete the second examination. The most common reasons for failure were reliance on the nonsurgical hand or pain in the surgical extremity. The results of the study suggest that most patients could safely return to driving within 3 weeks following surgery<sup>5</sup>.

## Wrist

### Scaphoid Fractures

Confusion exists regarding the optimal management of non-displaced scaphoid fractures. Proponents of acute screw fixation cite the advantages of earlier return to work but with the added risk of complications compared with nonsurgical treatment. Alnaeem et al. conducted a systematic review and meta-analysis to ascertain the differences between nonsurgical management and percutaneous or mini-open fixation of nondisplaced or minimally displaced acute scaphoid fractures with respect to return to work, time to union, and complication rates. Ten studies, including 376 patients, were reviewed. The results showed a shorter time to radiographic union (44 compared with 79 days) and return to work (46 compared with 77 days) in the operative compared with the nonoperative group. The complication rate was 14% in the operative group compared with 7% in the group managed with cast immobilization, but this did not achieve significance, possibly due to a type-II error<sup>6</sup>.

Impaired vascularity is one of the factors contributing to scaphoid nonunion. Numerous modalities are used to examine carpal vascularity, including magnetic resonance imaging (MRI), intraoperative punctate bleeding, and pathological analysis of the cancellous bone. If the proximal pole is avascular, does that mean that vascularized bone-grafting is mandatory? Rancy and colleagues prospectively followed 35 consecutive patients with scaphoid nonunion who were treated with curettage, non-vascularized bone-grafting, and headless screw fixation<sup>7</sup>. All patients underwent preoperative 1.5-T MRI, intraoperative assessment of proximal pole bleeding<sup>8</sup>, and pathological analysis of the cancellous bone within the proximal pole as measures of viability. Nineteen patients had a humpback deformity, treated through a volar approach and ipsilateral distal radius bone-grafting. Nine of 23 proximal pole fractures demonstrated ischemia on MRI imaging, 28 of 33 were found to have impaired intraoperative punctate bleeding, and 18 patients had  $\geq 50\%$  tissue necrosis on pathological analysis. Thirty-three of 35 scaphoids had healed by 3 months (confirmed on computed tomography [CT] analysis), leading the authors to conclude that true proximal pole infarction is rare and that nonvascularized bone-grafting can suffice as long as the fracture is appropriately stabilized and reduced<sup>7</sup>.

### Kienböck Disease

There are a myriad of classification and treatment strategies for Kienböck disease. With the advent of improved imaging and the increasing role of arthroscopy, Lichtman et al. have proposed a new algorithm that incorporates previous classification systems as well as 5 key questions that will help guide treatment: what is the patient's age, what is the effect of the disease on the lunate, how does the disease affect the wrist, what treatments are available, and what are the patient's requirements? The authors present a framework of treatment options ranging from lunate reconstruction to wrist salvage, which the reader is encouraged to become familiar with if managing these patients<sup>9</sup>.

### Wrist Arthritis

In the management of symptomatic radiocarpal joint arthritis, motion-preserving procedures include partial wrist denervation, partial wrist arthrodesis, proximal row carpectomy, and total wrist arthroplasty. In a younger patient, traditional teaching has advocated partial wrist arthrodesis over proximal row carpectomy given the higher rate of radiographic evidence of arthritis seen in the latter cohort. Wagner et al. conducted a retrospective review of 89 patients (age of  $<45$  years; 60% laborers) who underwent either of these treatments and were followed for  $>10$  years (mean follow-up, 11 years for partial wrist arthrodesis and 18 years for proximal row carpectomy). Results regarding pain relief, functional outcomes scores, secondary procedures, and conversion to total wrist arthrodesis were similar between the groups, with the proximal row carpectomy group having greater wrist range of motion. The 10-year revision-free and total wrist arthrodesis-free intervals for the proximal row carpectomy group were 81% and 84%, respectively, and for the partial wrist arthrodesis group, were 80% and 88%, respectively. Laborers and smokers had a higher rate of complications requiring secondary revision or total wrist arthrodesis. Patients who underwent proximal row carpectomy had greater radiographic evidence of arthritis, although this did not reach significance<sup>10</sup>.

Rahgozar et al. conducted a population-based study of 3,388 patients  $\geq 18$  years of age (39% proximal row carpectomy and 61% partial wrist arthrodesis) and noted, after 18 months of follow-up, a much higher conversion to total wrist arthrodesis in those who underwent partial wrist arthrodesis compared with proximal row carpectomy (19.2% versus 4.9%). This was reflected in an overall higher average direct cost per patient for those who underwent partial wrist arthrodesis compared with proximal row carpectomy (\$10,842 versus \$7,171, respectively)<sup>11</sup>.

### Ulnar Wrist Pain

Ulnar impaction can be a debilitating condition, with patients experiencing wrist pain during pronosupination. When considering an ulnar shortening procedure, some may view this to be contraindicated if the sigmoid notch has a reverse oblique

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inclination, because of concern of increased contact pressure at the distal radioulnar joint. Using MRI, Ross et al. studied whether the thickness of the cartilage at the sigmoid notch would affect the distal radioulnar joint inclination. They noted that reverse oblique inclinations of the distal radioulnar joint seen on plain radiographs did not exist when analyzing the cartilage on coronal MRI scans. The authors concluded that some patients, once believed to have had a contraindication to ulnar shortening osteotomy as determined using radiographs, may be suitable for an ulnar shortening osteotomy<sup>12</sup>.

If one is to perform an ulnar shortening osteotomy, how much of the ulna should be removed? Papatheodrou and colleagues presented the outcomes of 164 consecutive patients who underwent a 2 to 3-mm limited step cut ulnar shortening osteotomy. The mean ulnar variance preoperatively was 3.4 mm (range, 1 to 6 mm) and postoperatively, was 0.2 mm (range, -1 to 1.5 mm). The union rate was 98% at an average time of 8 weeks. At a mean follow-up of 5 years, all patients had improved pain, range of motion, grip strength, and modified Mayo wrist scores, regardless of the postoperative ulnar variance. Asymptomatic degenerative changes of the distal radioulnar joint occurred in 6% of the patients. The authors advocate 2 to 3 mm of shortening regardless of preoperative ulnar variance<sup>13</sup>.

Given the concerns of nonunion when performing a diaphyseal ulnar shortening osteotomy, Marquez-Lara et al. compared the outcomes of metaphyseal and diaphyseal osteotomy. The authors noted a shorter operative time (46 compared with 72 minutes), improved wrist extension, less pain, and improved QuickDASH scores for the group managed with metaphyseal shortening compared with diaphyseal ulnar shortening osteotomy. The 2 groups did not differ with respect to symptomatic hardware or union rates<sup>14</sup>.

### Carpal Tunnel Syndrome

Carpal tunnel syndrome is the most common upper-extremity neuropathy. Its diagnosis can be made on the basis of a history of numbness in the thumb, index, middle, and/or ring finger; nocturnal symptoms; thenar atrophy and/or weakness; positive Phalen test; loss of 2-point discrimination; and a positive Tinel sign over the median nerve<sup>15</sup>. The scratch collapse test (SCT) has been used to aid in the diagnosis of compression neuropathies. Simon and colleagues, using electrodiagnostic studies as a reference standard, investigated the sensitivity and specificity of the SCT for patients with suspected carpal tunnel syndrome. Their results showed that the SCT, when performed by blinded examiners, appeared to have a low sensitivity and specificity in diagnosing carpal tunnel syndrome<sup>16</sup>.

Is there an association between carpal tunnel syndrome and amyloidosis? Reyes and colleagues reported their initial findings from a prospective longitudinal study of 58 patients with carpal tunnel syndrome who underwent tenosynovial biopsy. Twelve percent of the patients were diagnosed with amyloidosis. Of these 7 patients, 2 were found to have evidence

of amyloid cardiomyopathy (light-chain). This subtype is rapidly progressive, with early diagnosis and intervention being important for patient survival<sup>17</sup>.

Chronic pain after hand surgery can be debilitating. Curtin et al. examined whether perioperative administration of minocycline would reduce the time to pain resolution after carpal tunnel release and trigger-finger surgery. One hundred and thirty-one patients were enrolled in this double-blinded, randomized controlled trial, with the results showing that oral administration of minocycline did not reduce the time to pain resolution compared with placebo in either patient group<sup>18</sup>. Boriani and colleagues conducted a prospective randomized double-blinded study looking at the effects of alpha-lipoic acid, a dietary supplement that has neuroprotective and neurotrophic properties, after carpal tunnel surgery. Sixty-four patients took either a placebo or 800-mg tablets of alpha-lipoic acid for 40 days. Compared with the controls, alpha-lipoic acid did not significantly improve nerve conduction velocity or Boston Carpal Tunnel scores but was associated with a decrease in the incidence of pillar pain. Despite these early results, additional studies are needed to validate its role in studies of larger design<sup>19</sup>.

### Dupuytren Disease

Since the introduction of minimally invasive treatments such as needle aponeurotomy and collagenase injections, there has been a change in the landscape of Dupuytren disease treatment patterns<sup>20</sup>. Zhao et al. noted that, on average, the number of Dupuytren contracture visits grew from 19,015 per year between 2007 and 2009, to 34,940 per year from 2011 to 2013<sup>21</sup>. It should be noted that the U.S. Food and Drug Administration approved the use of collagenase *Clostridium histolyticum* (CCH) in February 2010<sup>21</sup>.

Since its introduction, what is the long-term efficacy of CCH compared with other treatment modalities? Skov and colleagues conducted a prospective, independent, open-label, randomized controlled trial investigating the outcomes of needle aponeurotomy compared with injection of CCH in 50 patients with primary isolated proximal interphalangeal joint contractures. Results showed clinical improvement at 2 years was maintained in 29% of the patients who underwent needle aponeurotomy compared with 7% of the patients managed with CCH. Patients who received CCH injections had a higher rate of mainly transient complications (93% compared with 24% of the patients treated with needle aponeurotomy)<sup>22</sup>.

### Trigger Finger

In the management of noninfected flexor tenosynovitis, which corticosteroid injection should we use? In a report by Cassel and colleagues, 69 nondiabetic patients were randomized to receive either a triamcinolone (n = 37) or dexamethasone (n = 32) injection in the treatment of idiopathic trigger finger. Results showed that those who received a triamcinolone injection required fewer repeated injections (2 versus 10 patients at 6 or

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12 weeks because of continued symptoms) and had greater symptom resolution with less need for surgery at 6 months ( $p = 0.04$ ) compared with those who received dexamethasone<sup>23</sup>.

What is the efficacy of multiple injections for trigger finger? Dardas et al. reviewed the outcomes of 292 repeat corticosteroid injections for trigger finger over a 3-year period. Sixty-four percent of the study patients were female, 48% had multiple finger involvement, and 22% were diabetic. Thirty-nine percent of the second and third corticosteroid injections for trigger finger yielded long-term efficacy. Fifty percent of the patients who received repeat injections had symptomatic relief for 1 year. Although many of the patients ultimately went on to surgical treatment, this study details the long-term effectiveness of multiple corticosteroid injections for this condition<sup>24</sup>.

Are ultrasound-guided injections better than surgery in the management of trigger finger? One hundred and sixty-five patients were randomized to surgical release or ultrasound-guided corticosteroid injection, and by 3 months, 86% of those managed with injection and 99% who underwent surgery were successfully treated. The rate of success within the surgical cohort remained the same at 1 year but was only 49% for the patients treated with injection. Eleven patients in the injection group experienced a steroid flare, and 2 had fat necrosis at the injection site. Three superficial infections and 1 iatrogenic nerve injury were noted in the surgical group<sup>25</sup>.

Does the use of “wide awake local anesthesia with no tourniquet” (WALANT) decrease cost in hand surgery? Codding and colleagues reported on 78 patients who underwent a single trigger-finger release under WALANT ( $n = 47$ ) or monitored anesthetic care (MAC;  $n = 31$ ). Despite both groups having similar operative times, the WALANT group averaged 30 minutes in the recovery room compared with 72 minutes for the MAC group. The authors concluded that the avoidance of anesthesia services for high-volume procedures may result in significant cost savings in the impending era of bundled payments<sup>26</sup>.

### Opioid Prescriptions and Hand Surgery

Given the national epidemic regarding opioid abuse, it is imperative that all practitioners reevaluate their opioid-prescribing behaviors. Dwyer and colleagues conducted a prospective evaluation of an opioid-reduction protocol for their patients undergoing carpal tunnel release or volar locking-plate fixation of distal radius fractures. Patients received an educational handout regarding safe opioid usage and disposal, a pain diary, and encouragement to use both opioid and over-the-counter analgesics. Within the carpal tunnel syndrome cohort ( $n = 121$ ), the average prescription was 10 opioid pills compared with 22 in the previous year ( $p < 0.0001$ ). The average consumption was 3 opioid pills with 11 over-the-counter pills. Within the distal radius fracture group ( $n = 24$ ), the average opioid use was 25 pills compared with 39 pills the year before ( $p < 0.0001$ ). Patients averaged 16 opioid pills with 20 over-the-counter pills. Patient satisfaction was high in both

groups (96% in the carpal tunnel syndrome group and 88% in the distal radius fracture group). Patients who had a pain-catastrophizing scale score of  $>10$  used more than twice as many opioid pills. Given these results, the authors recommend up to 5 to 10 opioid pills for carpal tunnel release and 20 to 30 after volar plating of a distal radius fracture<sup>27</sup>.

Johnson and colleagues studied the history of prolonged opioid use among opioid-naive patients following common hand surgery procedures. Using insurance claims from the Truven MarketScan database, opioid consumption was examined for  $>77,000$  patients who underwent elective hand surgery (carpal tunnel release, carpometacarpal arthroplasty or arthrodesis, cubital tunnel release, or trigger-finger release) or trauma-related procedures (closed distal radius fracture fixation, flexor tendon repair, metacarpal fracture fixation, or phalangeal fracture fixation). Seventy-seven percent of the opioid naive patients filled an opioid prescription, and of these, 13% continued to fill their prescriptions up to 6 months following surgery. Risk factors for prolonged opioid use included younger age, female sex, lower income, higher Elixhauser Comorbidity Index, mental health disorders, tobacco usage, and undergoing elective surgery. Given these findings, it is incumbent upon us to adequately counsel our patients and to be aware of these risk factors for opioid dependence<sup>28</sup>.

### Quality

In order to deliver cost-effective health care, it is our duty to define patient outcomes when looking at quality improvement in orthopaedic surgery. The Agency for Healthcare Research and Quality (AHRQ), part of the U.S. Department of Health and Human Services, has devised numerous patient safety indicators (PSI) to identify inpatient adverse events. The American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) was developed to provide information pertaining to 30-day postoperative outcomes. These quality measures are being used by hospitals and policymakers to look at the rate of adverse events following orthopaedic surgery. How closely do they align? Sebastian et al. compared the complications following orthopaedic surgery identified by ACS-NSQIP and AHRQ-PSI among  $>3,000$  patients at a tertiary academic institute. The results demonstrated a large discrepancy between the methods in the adverse events reported. A large percentage of clinically important adverse events were missed by the AHRQ-PSI algorithms, indicating that it was insufficient to assess the quality of orthopaedic surgery<sup>29</sup>.

In an effort to ensure that we, as hand surgeons, are developing appropriate quality measures, the Hand Surgery Quality Consortium evaluated 44 quality measures, for which agreement was reached for 10 quality measures that covered the treatment of trigger finger, carpal tunnel, de Quervain tenosynovitis, masses in the hand, the use of antibiotics in hand surgery, ultrasound-guided tendinopathy injections, and the treatment of mallet finger<sup>30</sup>.



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Once these quality measures are established, what is the best method for collecting patient-reported outcomes? Schwartzberger and colleagues studied 969 patients who underwent carpal tunnel release and were randomized to the patient-reported outcome collection methods of mail, telephone, and e-mail. At 1 year, the response rates were 64% for the telephone compared with 42% for both mail and e-mail. Ninety-nine percent of the telephone surveys were completed compared with 88% of the mail and 83% of the e-mail surveys. While use of the telephone received the highest response rates, the authors concluded that a web-based methodology was the most preferred modality and had advantages in terms of ease and cost compared with other methodologies<sup>31</sup>.

The U.S. National Institutes of Health has developed the Patient-Reported Outcomes Measurement Information System (PROMIS) and with it, computer adaptive tests (CATs) to reduce responder burden. For the upper extremity, there is an upper-extremity CAT as well as a physical function CAT (which includes questions for both the upper and lower extremities). Kazmers and colleagues investigated whether functional measures of disability including the PROMIS physical function CAT, PROMIS upper-extremity CAT, and QuickDASH were associated with the PROMIS anxiety and pain interference nonfunctional measures. Results from 1,406 patients demonstrated that the PROMIS anxiety and pain interference CAT were associated with decreased patient-reported upper-extremity function as measured by the 3 functional metrics used<sup>32</sup>.

### Additional Studies of Interest

Kirschner wires are commonly used in hand surgery. If left exposed, pin track infection is a concern. Proponents who bury the pins cite a lower infection risk at the expense of an additional procedure to remove them. In a study by Ridley and colleagues involving 695 patients, 30% of the pins were buried and 70% were left exposed. The infection rate for the exposed Kirschner wires was 16% compared with a 9% rate for the buried-wire cohort ( $p = 0.01$ ). Subgroup analysis based on fracture location revealed a significantly increased risk of infection when the pins used in treating metacarpal fractures were left exposed ( $p = 0.02$ )<sup>33</sup>.

Are hand infections worse in patients with diabetes compared with those without diabetes? Sharma et al. presented their results regarding the sequelae of diabetic and nondiabetic hand infections over a 3-year period. Three hundred and twenty-two patients (76 diabetic and 246 nondiabetic) were

recruited. Results demonstrated that diabetic patients, especially those with poor inpatient glycemic control, had a greater risk of needing repeated drainage (odds ratio, 3.16;  $p = 0.05$ ) and of prolonged length of stay (odds ratio, 4.65;  $p < 0.01$ ). In addition, they tended to have a greater burden of disease, involvement of deeper structures, and a greater milieu of organisms compared with nondiabetics<sup>34</sup>.

Given the widespread use of fluoroscopy, many surgeons use protective lead aprons and thyroid shields. Do the machines we use, however, expose our eyes to radiation? During 1 year, eye radiation exposure was prospectively measured using both large and mini-C-arm fluoroscopy units. Results demonstrated minimal detectable eye radiation dosages in both groups, suggesting that the accumulated eye radiation dosage does not approach previously reported levels of critical radiation loads<sup>35</sup>.

In the era of cost-effective health care, what is the cost differential of open versus arthroscopic ganglion excision? Using a private-payer administrative claims database, Pang and colleagues examined the cost associated with the treatment of 5,119 patients who underwent open ganglion cyst excision compared with that of 20 patients who underwent arthroscopic treatment. The average cost of an open excision was \$1,821 compared with \$3,668 for arthroscopic excision. These data can be useful for generating value-based models<sup>36</sup>.

### Evidence-Based Orthopaedics

The editorial staff of *The Journal* reviewed a large number of recently published research studies related to the musculoskeletal system that received a higher Level of Evidence grade. In addition to articles cited already in the Update, 3 other articles with a higher Level of Evidence grade were identified that were relevant to hand and wrist surgery. A list of those titles is appended to this review after the standard bibliography. We have provided a brief commentary about each of the articles to help guide your further reading, in an evidence-based fashion, in this subspecialty area.

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**Evidence-Based Articles Related to Hand and Wrist Surgery**

**Xu PZ, Fowler JR, Goitz RJ.** Prospective randomized trial comparing the efficacy of surgical preparation solutions in hand surgery. *Hand (N Y).* 2017 May;12(3):258-64. Epub 2016 Jul 1.

To minimize the risk of infection, different surgical preparations are commonly used in hand surgery. In this study, 240 patients undergoing elective clean soft-tissue hand surgery were randomized to receiving the 3 most common surgical preparation solutions (ChlorPrep [Enturia], DuraPrep [3M], and Betadine [Purdue Pharma]). Pre-preparation and post-preparation culture samples were obtained adjacent to the surgical incision site. Results showed that DuraPrep and Betadine were superior to ChlorPrep for skin decontamination prior to clean elective soft-tissue hand surgery.

**Ting BL, Walley KC, Trivison TG, Rozentel TD.** Elevated bone turnover markers are associated with distal radius fractures in premenopausal women. *J Hand Surg Am.* 2017 Feb;42(2):71-7.

Since the development of the American Orthopaedic Association's Own the Bone program, much attention has been paid to the management of fragility fractures in postmenopausal women. Is there a link between elevated bone turnover markers and distal radius fractures in premenopausal women? Ting et al. prospectively enrolled 20 premenopausal women with a distal radius fracture and compared them with a similar age-matched control group without fractures. Patients who had a distal radius fracture had a significantly greater level of serum osteocalcin and N-terminal extension propeptide of type-1 collagen. Interestingly, levels of 25-hydroxyvitamin D, parathyroid hormone, and bone-specific alkaline phosphatase were similar between the groups and were not associated with distal radius fracture in premenopausal women. Results

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## WHAT'S NEW IN HAND AND WRIST SURGERY

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from this study may be helpful in predicting future fragility fractures in this patient group.

**Earp BE, Stanbury SJ, Mora AN, Blazar PE.** Needle-free jet lidocaine administration for preinjection anesthesia in trigger finger injection: a randomized controlled trial. *J Hand Surg Am.* 2017 Aug;42(8):618-22. Epub 2017 May 24.

Earp and colleagues conducted a prospective randomized trial in which patients with trigger finger received local anesthesia by J-tip (needle-free) just prior to corticosteroid injection or a combination of local anesthesia and corticosteroid injection administered simultaneously through a single needle. The authors noted that the use of the J-tip (needle-free) decreased patient pain and that all patients anticipated more pain than they actually experienced.