Table 1. Informed Decision-Making During First Appointment*

	Control Group† (n=60)	Intervention Group† (n=60)
No informed decision	40 (66.7%)	25 (41.7%)
Informed decision‡	20 (33.3%)	35 (58.3%)

*Significance for both groups was set at p<0.05. The p value for this comparison was p=0.01.
†The values are given as the number of patients, with the percentage in parentheses. ‡Missing responses in this catergory, resulting in sixty patients in each group.

Surgeons also experienced benefits associated with SDM. With respect to the IG, they reported being asked more appropriate questions by patients (p<0.0001), increased satisfaction with the efficiency of the visits (p<0.0001), and increased overall satisfaction with the patient encounter (p<0.0001).

Dr. Bozic and colleagues concluded that the results of their study demonstrate that SDM interventions in orthopedic practice benefit both the patient and surgeon, and he emphasized the value of introducing decision and communication aids into routine orthopedic practice.

Computer-Assisted Surgery Shortened Wrist Surgery Time and Improved Patient Scores

Written by **Mary Mosley**

Interim results from an ongoing trial showed that computer-assisted surgical (CAS) planning combined with patient-specific intraoperative guides reduced surgery and fluoroscopy times for distal radius corrective osteotomy and improved patient-reported outcomes. The technically difficult surgery has about a 17% incidence of distal radial malunion (DRM), said Natalie Leong, MD, University of California Los Angeles, Los Angeles, California, USA. This research group believes there is a positive correlation between quality of surgery and overall wrist function.

This is the first prospective, randomized, controlled trial of CAS for DRM and is being conducted at four institutions in the USA, Belgium, and Sweden [Leong NL et al. *BMC Musculoskelet Disord* 2010]. In the CAS patients, computed tomography (CT) scans of the bilateral forearm were used to make bony models, after which software determined the optimal osteotomy site and bony alignment by superimposing the malunited model onto the healthy contralateral model, and thereby determined the amount of correction needed. Then plastic customized intraoperative surgical guides were created using 3D printing. These guides were placed over the distal radius during the procedure and removed after surgery.

Patients who had extra-articular DRM and were >3 months post injury were randomized to usual corrective surgery (n=9) or CAS-guided surgery (n=7). Volar fixation along with osteotomy was performed in all patients. The use of bone grafting was left to the surgeon's discretion.

The mean operative time was reduced from 106 minutes in the control group to 78 minutes in the CAS group, and average fluoroscopy time was reduced from 226 to 31 msec, respectively (p<0.05).

Before surgery, there were no differences between groups for Disability of Arm, Shoulder, and Hand (DASH) scores, Patient-Rated Wrist Evaluation (PRWE) scores, and Visual Analog Scores for pain and for satisfaction. All patients reported improvement in these measures after surgery, although there was a trend for a greater improvement in the CAS group compared with the control group at 3, 6, and 12 months, said Dr. Leong.

In the CAS group, the DASH scores improved more at 3 and 6 months (by ~30 to 35 points) compared with controls (~15 to 20 points). PRWE scores improved ~30 points with CAS compared with ~22 points at 6 months, and were nearly similar at 12 months. At 3 months, patient satisfaction improved by 6.5 points with CAS compared with 4.1 points with control at 3 months, and these rates of improvement were maintained at 12 months. Pain scores improved by 6.0 points and 3.5 points at 3 months and by 7 points and nearly 4 points at 12 months with CAS and control, respectively.

There were no malunions or nonunions at 12 months. There was one case of contralateral wrist fracture at 6 months and one case of self-limiting extensor synovitis with CAS, and one case of complex regional pain syndrome and one case of extensor carpi ulnaris in the control group.

The interim results are promising, said Dr. Leong, and the goal is to complete 1-year follow-up in 40 patients. Other possible uses for the CAS approach are cold trauma and congenital deformities.

Antifibrinolytics Reduced Blood Loss in Study of Adult Spinal Deformity Surgery

Written by **Mary Mosley**

In a surgery known for substantial blood loss (often >5 L) and need for transfusion, two antifibrinolytics significantly reduced the primary outcomes of intraoperative and total blood loss (IOBL; TBL) compared with placebo in patients aged ≥50 years. However, in patients aged <50 years, no significant differences were seen, said Thomas Cheriyan, MD, New York University Langone Medical Center, New York, New York, USA.

The prospective, double-blind trial randomized patients undergoing posterior spinal fusion of at least five levels to tranexamic acid (TXA; n=19),

epsilon aminocaproic acid (EACA; n=19), or placebo (n=14). Patients with renal dysfunction, coagulation abnormalities, or who could not receive transfusions for religious reasons were excluded. For the analysis of the results, the patients were stratified by age to <50 (n=32) or ≥50 years (n=20), because of statistically significant demographic differences between the treatment groups.

The loading and maintenance doses for TXA were 10 mg/kg and 1 mg/kg/hr, and 100 mg/kg and 10 mg/kg/hr for EACA. TXA and EACA are lysine analogues that inhibit fibrin degradation by blocking the activation of plasminogen to plasmin.

In the patients ≥50 years, IOBL was 1297±520 mL and 1278±523 mL in the TXA and EACA groups respectively compared with 2954±1116 mL in the placebo group (p=0.02), while TBL (IOBL plus postoperative blood drainage) was 3085±1261 mL and 2357±854 mL respectively compared with 5468±2881 mL with placebo (p=0.01).

In the younger patients, IOBL was higher with TXA (2250±1299 mL) and lower with EACA (957±925 mL) compared with placebo (1178±1178 mL; p=0.19). A similar pattern was seen for TBL: 3572±1580 mL with TXA, 2055±748 mL with EACA, and 2687±886 mL with placebo (p=0.09).

For the primary outcome of transfusion rates, there was a broad variation in the intraoperative and postoperative rates between TXA, EACA, and placebo within each age group (Table 1), reflecting the small sample size, said Dr. Cheriyan.

Table 1. Intraoperative and Postoperative Transfusion Rates

	Age ≥50 years		Age <50 years	
	Intraoperative (%)	Postoperative (%)	Intraoperative (%)	Postoperative (%)
TXA	75	43	67	100
EACA	78	13	40	10
Placebo	71	16	14	71

Limitation: Low sample size.

EACA=epsilon aminocaproic acid; TXA=tranexamic acid;

There was no difference in the secondary outcome of preoperative to postoperative change in hematocrit in either age group. Although the sample size was small, no safety issues were seen, he said. There was one pulmonary embolic event each with TXA and EACA. No thromboembolic events or myocardial infarctions occurred.

The investigators plan further study to examine whether there is a dose response for either TXA or EACA and to increase the sample size to address those limitations in the present study.