LOCKING PLATE

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ered educational tools that encourage readers to consider the information presented and reach their own conclusions.

A focus on three questions

The TO on locking plates for extremity fractures addresses the following three questions:

• What are the indications for locking plates?
• Are locking plates more effective than traditional plates?
• Are locking plates cost-effective?

The TO also addresses a variety of extremity fractures, including distal radius, proximal humerus, distal femur, periprosthetic femur, tibial plateau, proximal tibia, and distal tibia fractures.

The introduction to the TO notes that “locking plates stabilize bone fragments by virtue of the attachment of the screw to the plate in a rigid, fixed-angle coupling, usually accomplished with threads in the screw head, plate hole, or both.” This feature makes locking plates more resistant to failure, which may be an advantage when treating osteoporotic bone.

The TO also clarifies that although the introduction of locking plate technology coincided with the development of less invasive surgical techniques, these are two separate concepts. Both traditional and locking plates may be inserted through both traditional and less invasive surgical techniques.

After identifying more than 450 citations, the workgroup focused on the 33 studies that met all the inclusion criteria. Of these, 28 were case series. All studies presented patient-oriented outcome measures.

Indications for use

The workgroup recorded patient enrollment criteria to answer the question on indications for the use of locking plates. Although enrollment criteria were not consistent across studies, in general, “published studies enrolled patients suffering acute, traumatic fractures of varying degrees of severity” and did not enroll patients who had not reached skeletal maturity or who were younger than age 18.

Comparative effectiveness

To address the question of whether locking plates are more effective than traditional plates, the workgroup looked at outcomes of the four studies that compared locking plates to nonlocking plates. They found no statistically significant differences for patient-oriented outcomes, adverse events, or complications. Comparing case studies, noted the workgroup, was difficult due to the “wide variety of patient-oriented outcome measures and duration to follow-up.”

Cost-effectiveness

According to the workgroup, literature searches did not identify any peer-reviewed cost-effectiveness or cost-utility studies that directly addressed the question of cost-effectiveness.

The complete TO, including detailed evidence tables extracted during its development, is available at: www.aaos.org/technologyoverview

The TO Workgroup on Locking Plates for Extremity Fractures was chaired by Jeffrey Anglen, MD, and included Richard F. Kyle, MD; John Lawrence Marsh, MD; Walter W. Virkus, MD; Michael Warren Keith, MD, chair of the Evidence-Based Practice Committee, and William C. Watters III, MD, GTOC chair.

Not an official position

The AAOS technology overview on locking plates for extremity fractures is not intended to convey any official AAOS position on the use of locking plates. Instead, the information is provided as a service to help members identify and evaluate the available published literature on this topic so that they can provide the best possible care to their patients.

In December 2007, the AAOS adopted its first TO, on the gender-specific knee. AAOS is involved in the development in technology overviews because technology plays a central role in the practice of orthopaedic surgery. In addition, AAOS seeks to be a resource for those seeking unbiased information on newly developed surgical procedures, drugs, biologics, and orthopaedic devices.

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AAOS adopts CPG on OA Knee

The AAOS has also adopted clinical practice guidelines (CPG) on treating osteoarthritis (OA) of the knee. The guidelines include 22 recommendations, covering issues ranging from patient education, lifestyle modification, and mechanical interventions to pain relievers and surgical intervention (not including arthroplasty). Full coverage of the CPG on treatment of OA knee will be in the February issue of AAOS Now. The complete guidelines and recommendations can be accessed on the AAOS Web site, www.aaos.org/guidelines

Anteroposterior radiograph of a comminuted bicondylar tibial plateau fracture in a 45-year-old man treated with a lateral polyaxial locking plate. The fracture united without complication.