As the age of the population increases, so does the number of fractures that occur in osteoporotic bone. The treatment challenge for current and future orthopaedic surgeons is obtaining adequate fixation in osteopenic bone. A typical area that is particularly difficult is the distal fibula. Ankle fractures in elderly patients are common and outcomes in terms of pain, deformity, and stability of unstable fractures are better when treated operatively (Ali et al).

Over the past 10 years, locked plating has become popular within the orthopaedic surgical fixation arena. One indication for its use is to gain fixation strength in osteopenic bone. Osteoporotic bone often cannot develop enough screw torque, and therefore friction, at the bone-plate interface to allow adequate fixation and ultimately union. Screws that lock to the plate create a single-beam construct that does not depend on the bone for fixation strength (Egol et al), which could potentially aid in obtaining more stability in ankle fractures in elderly patients.

Antiglide plating techniques have previously been shown to be superior to direct lateral plating in rotationally unstable ankle fractures (Schaffer and Manoli). The current authors explored laterally based locking plates versus posterior antiglide unlocked plates in cadaveric, osteopenic specimens (average age 81 years; all specimens female) with simulated ligamentous Lauge-Hansen type IV supination-external rotation ankle fractures. Once hardware was placed, the ankles were stressed to failure and this torque, as well as stiffness, was recorded. The antiglide constructs were stiffer and withstood greater torque to failure. Also, failure occurred at different places, as would be expected. The lateral plates failed at the distal fragment, in the traditionally weakest bone of an ankle fracture, with the locked screws to the plate remaining intact. The antiglide plates failed due to bending of the plate in all but two specimens.

These failures are similar to the results published by Schaffer and Manoli almost 20 years ago. They also reported superiority of antiglide plates over lateral plates in rotationally unstable cadaveric ankle fractures torqued to failure. They found the advantages more evident in low and middle ranges of bone quality.

The current authors offer more evidence for the use of antiglide plating for rotationally unstable ankle fractures.

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References:

