12.40  F437  Factors affecting rates of infection and prolonged bone healing in 821 operative treated isolated tibial shaft fractures  Peter Reyners  Peter Reyners, 

Purpose
We reviewed all isolated tibial shaft fractures treated by operative means, with focus on prolonged healing and infection.

Design: Retrospective Case Control Study; level of evidence, Prognostic level III.

Methods
Patients: 821 isolated tibial shaft fractures, with a drop-out of 5.6%
Open fractures: 400 (grade I & II 280, grade IIIa,b,c 120)
Type A,B fractures: 597
Type C fractures: 224
Skeletal Fixation Modes: Ex;Fix (unilateral-one plane): 192, UTN(Synthes): 337, Plate(LCDCP): 129, RTN(Synthes): 183

Outcome measurements: Union time, requirement for secondary treatment, and development of deep infection.

Results
Infections: 94 (11.4%), Closed # which became infected: 21 (5%)
Open # which became infected: 73 (18%)
Ex;Fix: 56 (29%)
Plate: 15 (12%)
UTN: 16 (5%)
RTN: 7 (5%)

In a multiple logistic regression analysis, only Soft tissue damage had a statistical significant interference with the outcome infection (point estimate 0.117, 95% CI 0.053-0.262)

Prolonged healing: 285 (34% )  Delayed union 191
Non-union 94
Closed fractures which develop a delayed healing: 56 (13%)
Open fractures which develop a delayed healing: 135 (34%)
Closed fractures which develop a non-union: 20 (5%)
Open fractures which develop a non-union: 74 (19%)

In a multiple logistic regression analysis, infection & fracture type had a statistical significant interference with the outcome prolonged healing.

Conclusions
The use of an unilateral external fixator as a definitive treatment for tibial fractures is obsolete.
For a contaminated tibial fracture the use of the UTN diminish the risk of infection.
Looking for the healing time, UTN & Ex;Fix are associated with a significant prolonged bone healing time.