STERNALOCK

THE GOLD STANDARD FOR STERNAL FIXATION
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Facts

• Sternotomy is the most frequently performed access for cardiac surgery
• Infectious complications leading to mediastinitis are extremely morbid
• Mortality rate as high as 15%
Indications

- Sternotomies
- Mini sternotomies
- Thoracotomies
- Rib fixation
- Sternal revisions
- Chest wall repair
GOALS

Decreased infection rate
Greater stability
Increased patient comfort
Reduced sternal clicking
Earlier bone healing
Decreased pain
Faster return to activity
WHY CHANGE?
TODAY’S PATIENT PROFILE

High risk of sternal wound infections
• Most of our patients are HIGH RISK patients
High risk patients

- Age
- Diabetes
- Osteoporosis
- Complex surgeries
- Off line sternotomy
PREOPERATIVE RISK FACTORS

- Chronic obstructive pulmonary disorder
- Diabetes
- Immune compromise
- Obesity
- Osteoporosis
- Renal failure
- Chronic steroid use
OPERATIVE RISKS

- Off-line sternotomy
- Transverse fractures of the sternum
- Redo surgery
- Concurrent infection
- Long CP bypass times (more 2 hs)
The presence of the HIGH RISK FACTORS leads to STERNAL ‘MOBILITY’ related complications: HIGHER RISK of sternal DEHISCENCE and INFECTION
ADVANTAGES

• Greater stability
• Earlier bone healing
• Reduced sternal clicking
• Decreased rate of mediastinitis
RESTORE Study

• Randomized Controlled Multicenter Study to Evaluate Sternotomy Patients for Osteosynthesis and REcovery
RESTORE Study CONCLUSIONS

• Earlier bone healing
• Decreased pain
• Faster return to activity
TECHNIQUE

- Wire MANUBRIUM and BOTTOM of the sternum
- Select PLATES
- LAY FLAT on the sternum
- Select SCREW
- Measure depth
OUR EXPERIENCE

Cardiovascular Surgery
Hospital Universitario Dr Negrin
Las Palmas
Spain
• High risk patients (2 or more risk factors)
• July 2007- December 2009
• 160 patients
160 patients

- 89 Diabetics
- 34 COPD
- 45 Osteoporic
- 116 older than 70 y o
- 32 redo surgery
- 12 off mid line sternotomy
- 34 obesity
Patient selection

• 2 or more high risk factors
OUR TECHNIQUE

• Wiring of the MANUBRIUM and BOTTOM of the sternum with X-WIRING.

• Select PLATES

• Select SCREWS

RESULTS

• No major complications during 160 consecutive patients.
• No mediastinitis
• No sternal inestability
• No major wound complications
• 4 post op revisions (bleeding) without opening difficulties
STERNAL LOCK

• Rigid fixation of the sternum with plates give the patient a more stable and fix sternal closing
• We select Sternalock because...
• We adopted the system in 2007
• We use it in all high risk patients (Two or more factors)
• Excellent results
CONCLUSIONS

• Compromised healing, transverse fractures, off line sternotomy LEAD to sternal INSTABILITY

• Sternal INSTABILITY LEADS to PAIN, NON UNION and higher risk of INFECTION
• Clinical research shows that LACK OF BONE UNION leads to INCREASED RISK of MEDIASTINITIS
• RIGID FIXATION increases BONE UNION and facilitate BONE HEALING
Patients and methods

- 160 patients performed since 2007
- All of them had at least two risk factors
- No mediastinitis cases
- No sternal instabilities in our cases
- In cases requiring ‘bring back’ no re-opening problems found
Problems???

- Easy technique
- No worries about re-opening
- Clearly visible chest X-ray (Titanium)
- No interference NMR
- Cost (Compare with the cost of complications... Infection, instability...)}
THANK YOU