

**eP044**

**ePoster Viewing**

**Post-surgical and implant infections: from head to knee**

**STERNAL PLATE FIXATION FOR CHEST WALL RECONSTRUCTION POST CORONARY ARTERY BYPASS SURGERY APPEARS TO INCREASE THE RISK OF SURGICAL SITE INFECTION.**

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**Objectives:** Sternal wound infections are a significant cause of morbidity and mortality in patient undergoing cardiac surgery. Patients undergoing coronary bypass (CABG) often have higher risk of post-operative complications and poor wound healing. Wire cerclage is the standard for sternotomy closure. Closure with rigid titanium plates has recently gained attention for studies suggesting greater sternal stability, shorter length of stay, and decreased post-operative complications. We report on our preliminary experience with this technique in high risk-patients for primary closure and compare it to a historical cohort of matched controls.

**Methods:** This is a case-control study. From August 2010 to August 2012, 1476 CABG were performed at the University Of Alberta Hospital, Edmonton, Canada. Titanium plate fixation was used in 32 patients for primary sternotomy closure. The infection rate of the study population was compared to 58 age matched controls that had sternotomy closure with wire cerclage. Risk factors including obesity, COPD, diabetes, renal failure, CHF or PVD were collected, with high risk defined as  $\geq 3$  risk factors.

**Results:** Primary closure with titanium plate fixation was performed on 24 males and 8 females the control group was composed of 43 males and 15 females. The average age of the patients was 66 years in both groups. The rate of sternal wound infection for sternal plates and sternal wires were 25% and 7% respectively (RR: 3.62,  $p=0.02$ ). The majority of the patients in both groups were high-risk. The mean LOS was 16.97 days for the cases and 13.93 days for the control. The total mortality rate (6.3% vs. 13.8%) was higher in the control group.

**Conclusion:** At our institution we did not observe the benefits expected for the titanium plate fixation of sternotomies, seeing instead a RR of 3.62 for infection with plate fixation. The concept of improved stability and outcomes is appealing, however the high infection rate observed outweighed a possible stability benefit. We hypothesize the rate of infection observed in our study may partially reflect the novelty of this approach in our hospital, and perhaps the physical surface area and characteristics of the plates. Long-term follow up and large scale studies will be needed to assess the benefits, complications and indication for primary closure with titanium plate fixation.

Table. Characteristics of the study population.

Parameter	No.(%)	
	Case (n=32)	Control (n=58)
Age	66.9	65.2
Sex		
M	24 (75.0)	43 (74,1)
F	8 (25.0)	15 (25.3)
BMI	38.13	35.32
> 3 risk factors	29 (90.6)	50 (86.2)
> 5 risk factors	17 (53.1)	11 (19.0)
Sternal wound infection	8 (25)	4 (6.9)
Deep	7 (87.5)	1 (25.0)
Superficial	1 (12.5)	3 (7.5)
Microbiology	MSSA, <i>P. aeruginosa</i> <i>Proteus sp.</i> <i>Candida sp.</i> Anaerobes	<i>E. coli</i> (ESBL) MSSA Anaerobes
Time to Infection (Days)	20.9	24.8