A COMPARISON OF SHORT TERM OUTCOME BETWEEN CANNULATED SCREW FIXATION AND NON-LOCKING RECONSTRUCTION PLATING OF DISPLACEDACETABULAR FRACTURES

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INTRODUCTION:

Acetabular fractures are caused by high energy trauma and usually require internal fixation. This study was conducted to compare the postoperative outcome between screw fixation and plate fixation of acetabular fractures.

METHODS:

In this case series, patients with closed acetabular fractures who underwent surgical fracture fixation at our centre between January and December 2017 were analyzed for their postoperative outcomes during a one year follow up.

RESULTS:

14 patients were selected. All patients were male with an average age of 27.6 years. Motorvehicle accident was the major cause of injury. 7 patients had elementary acetabular fractures whilst the rest had associated fractures. 2 patients underwent cannulated screw fixation(CSF), 5 underwent screw and plate fixation(SPF) whilst 7 underwent non-locking reconstruction plating(NLRP). All patients who underwent CSF had anatomical fracture reduction, good Matta radiological score and excellent Merle score. Patients with SPF were the earliest to ambulate.1 case of avascular necrosis(AVN) and heterotropic ossificans(HO) was reported in this group. Patients with NLRP took longer to ambulate. 1 patient in this group had poor Matta reduction and Merle score. 1 patient developed osteoarthritis(OA) and 1 patient died after surgery.

DISCUSSIONS:

Acetabular fracture fixation is challenging due to its anatomy and risk of neurovascular injury. NLRP is the standard method of fixation. CSF is an alternative fixation method that provides limited soft tissue disruption, shorter surgery time and fewer complications compared to NLRP[1]. CSF is recommended for non-displaced acetabular fractures[1], thus we would like to determine its effectiveness for displaced fracture. We found that the CSF compression, effective in maintaining fracture reduction given that the screw placement within the pelvic corridor is perpendicular to the fracture site and fracture is reduced via manual traction or direct limited open approach prior to CSF. All our CSF patients had no postoperative complications and ambulate early. Extensive tissue dissection during plate fixation cause postoperative pain leading to delayed ambulation and vascular injury leading to AVN. Comminuted fracture pattern had caused poor fracture reduction resulting in the OA and HO case seen. The 1 postoperative death case was due to pulmonary embolism.

Table 1 showing patient demography and outcomes

Variables	Screw fixation(n= 2)	Screw and plating (n=5)	Acetabular plating(n=7)
Age (Yr)	24+/-4.2	27.4+/-10	28.8+/-13
Mech of Injury			
MVA	2	4	7
Fall	0	1	0
Fracture pattern			
Elementary	2	0	5
Associated	0	5	2
Time to surg. (days)	5.5+/-1	11.2+/-3.5	8.4+/-4.5
Time discharg(days)	3	4.2+/-2.3	3.8+/-2.5
Matta reduction crit.			
Anatomical	2	4	6
Imperfect	0	1	0
Poor	0	0	1
Matta radiology crit.			
Good	2	5	5
Fair	0	0	2
Poor	0	0	0
Merle score			
Excellent	2	4	5
Good	0	1	0
Fair	0	0	0
Poor	0	0	1
Unsupported ambulation (days)	104.5+/-12	93.7+/-5.2	109+/-19
Complications			
Avascular necrosis	0	1	0
Osteoarthritis	0	0	1
Hetropic ossificans	0	1	0
Death	0	0	1

CONCLUSION:

Cannulated screw fixation with or without plating is a safe and good alternative fixation method for displaced acetabular fracture but has its limitations.

REFERENCES:

1. Horacio et al.Percutaneous fixation of acetabular fractures. EOR J Vol 3 May 2018.