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PRIMARY AND DEFINITIVE TREATMENT OF COMPOUND LONG BONE FRACTURES OF MISSILE INJURY BY EXTERNAL FIXATION IN AL-KARKH GENERAL HOSPITAL

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ABSTRACT

Introduction: There have been many experiments played by the healthcare scheme, and numerous centers were distress from several difficulties, which occasionally caused in providing subnormal upkeep. The aim was to deliver the knowledge and consequences of using external fixation as an initial and final conclusive management for compound shaft fractures of the humorous, femur, and tibia. **Method:** cross sectional study was done in Al-Karkh general hospital between 2014 2017 in Iraq to victim of terroristic war 85 % Male military solders and others are civilian, all are male in study with age and type of injury in table 1-2 our challenge her is the facilities ,time of patient arrival where some of them attend causality after 24 hr. of injury. **Results:** Cross sectional study of 69 patients, mean age is (32.3 ± 9) years old, 100% of patients are males, (68%) of patients with medium Speed of missile injury, (100%) of patients with Bipolar/2bar type of exfix, (87%) full union radiological outcome, (42%) of patients at age group 21-30 years old. there is no significant association between age groups and speed of messile injury and radiological outcome. **Conclusion:** Most patients with medium Speed of missile injury, all patients with Bipolar/2bar type of external fixation, full union radiological outcome, no significant association between age groups and speed of messile injury and radiological outcome.

KEYWORDS: External fixation, primary, definitive, long bone fractures, Al-Karkh general hospital.

INTRODUCTION

There have been many experiments played by the healthcare scheme, and numerous centers were distress from several difficulties, which occasionally caused in providing subnormal upkeep. The most usual apparatuses of damage were trauma by shrapnel, heavy weaponry, blasts, or distorted assemblies. This complicated by a high patient capacity and absence of services and human resources during main incidents.[1–3] This encouraged us to discover inexpensive approaches of conclusive management that are more voluntarily obtainable and practical rapidly without the requirement for removal to other advanced services. The most appropriate were outside fixators, which were calmer to production, get, and put on during the battle likened to other orthopedic grafts. During catastrophes, the usage of the external fixator for early management or as part of injury control surgery for open long bone fractures healthy recognized in the literature.[4-6] This technique is typically transitory, and early change to internal fixation supported as allowable by the patient, wound and fixator disorder in order to reduction the dangers of long restriction such as "joint stiffness, soft tissue ulcers, and thromboembolic happenings while reducing the degree of infection and increasing the rates of bone combination.[7–9] The factors nearby a patient's injury can be a contraindication for change to internal fixation, like "infection, severe soft tissue injury, poor soft tissue coverage", and deprived over-all disorder of the patient.[10, 11] Notwithstanding the reported problems, using the external fixator as a conclusive and last management for open long bone fractures produced hopeful consequences with respect to bone union in some trials.[12–14] The aim was to deliver the knowledge and consequences of using external fixation as an initial and final conclusive management for compound shaft fractures of the humorous, femur, and tibia.

METHOD

A cross sectional study was done in Al- Karkh general hospital between 2014 2017 in Iraq to victim of terroristic war 85 % Male military solders and others are civilian all are male in study with age and type of injury in table 1-2 our challenge her is the facilities, time of patient arrival where some of them attend causality after 24 hr. of injury. resuscitation was done vascular injury not included her and then admitted theater for wound debridement and excision, external fixation with Hoffman type II double bar {medial and lateral} 6 shanz in lower limb and 4 in upper limb cases. Most of them with severely comminuted fractures we do closed reduction under screen control we try not to do through and through debridement to preserve soft tissue attachment and fracture hematoma while some with massive soft tissue loss do open reduction and full debridement wash 5-6 Ll normal saline. Wound closure by approximation first some until secondary healing other need secondary suturing, grafting skin or flap. Some need more suction of debridement. Antibiotic coverage parenteral 10-14 days and then oral for further 3-4 wk. follow up serial plan x ray monthly till healing, in figure pre post op and healing view, healings from 5-9 month for full union including the delayed union but not the nonunion. Cases of delayed or nonunion deal with by dynamization, bone marrow injection, even bone grafting with still use the same ext. Fix. Until union only 3 cases of nonunion one do bone carriage segment by orthofix ext. fix. Device and two change to internal fixation rehabilitation programs fully applied for preserved joint mobility. **Statistical analysis** done by SPSS 22, frequency and percentage used for categorical data, mean and SD for continuous data. Chi-square used for assessed association between variables. P-value less or equal to 0.05 is consider significant.

RESULTS

Cross sectional study of 69 patients, mean age is (32.3 ± 9) years old, 100% of patients are males, (68%) of patients with medium Speed of missile injury, (100%) of patients with Bipolar/2bar type of exfix, (87%) full union radiological outcome, (42%) of patients at age group 21-30 years old. As show in table 1.

Table 1: Variables distribution.

Variables		Frequency	Percentage
Gender	Male	69	100.0
Speed of missile injury	high	15	21.7
	low	7	10.1
	medium	47	68.1
Type of ex fix	Bipolar/2bar	69	100.0
Radiological outcome	delay union	4	5.8
	full union	60	87.0
	none union	5	7.2
Age	11-20	6	8.7
	21-30	29	42.0
	31-40	21	30.4
	41-50	12	17.4
	>60	1	1.4

According to table (2, 3); there is no significant association between age groups and speed of messile injury and radiological outcome.

Table 2: Association between age groups and speed of messile injury.

		Age				
		11-20	**21-30**	**31-40**	**41-50**	**>60**
Speed of messile injury	High	0	5	9	1	0
		0.0%	17.2%	42.9%	8.3%	0.0%
	Low	0	2	4	1	0
		0.0%	6.9%	19.0%	8.3%	0.0%
	Medium	6	22	8	10	1
		100.0%	75.9%	38.1%	83.3%	100.0%
Total		6	29	21	12	1
		100.0%	100.0%	100.0%	100.0%	100.0%

P-value= 0.075**, (≤ 0.05 significant).**

Table 2: Association between age groups and radiological outcome.

		Age				
		11-20	**21-30**	**31-40**	**41-50**	**>60**
Radiological Outcome	**Delay Union**	0	2	1	1	0
		0.0%	6.9%	4.8%	8.3%	0.0%
	Full Union	6	26	17	10	1
		100.0%	89.7%	81.0%	83.3%	100.0%
	None Union	0	1	3	1	0
		0.0%	3.4%	14.3%	8.3%	0.0%
Total		6	29	21	12	1
		100.0%	100.0%	100.0%	100.0%	100.0%

P-value= 0.9, **(≤ 0.05 significant).**

(A) **(B)**

Fig. 1: A and B; 40 years old image show 1month post op external fixation and second image 9 month post op show complete healing.

DISCUSSION

External fixation used for management of fractures of long bone, a difference has to make between its use throughout wars or disasters. Due to the different factors, the values of external fixation and injury control shadowed during war are different from those followed during peace. During wars, include inhibition of blood loss, limit of infection, and steadying of fractured bone. Moreover, it the wound save pure as well as the predicted upcoming area of internal fixation. These values, however, accept that the patient will quickly expatriate out of the tragedy region to a center accomplished of providing gold standard management.[15] Current study show all patients are male due to the data collected in Al- Karkh general hospital, which considered military hospital, most patients in current study are Speed of missile injury, all patients with external fixation, with full radiological union. In a state where a large number of patients have initially manage close to, the frontline, external fixation allows for a simple and rapid intervention, which stabilizes and prepares the patient for continued treatment at a base hospital.[16] It is mainly beneficial in damage control for hemodynamically unsteady patients with multisystem damages who cannot holder lengthy, compound operation and who need additional management by other subspecialties.[17,18] Finally, the ultimate choice about when to use the external fixator and its part in management should be taken by the early considering orthopedic doctor after accounting for the numerous environmental and patient factors such as the following: "obtainability of apparatus and funds, simplicity of transmission, convenience of the primary center, fracture configuration, soft tissue disorder, related injuries, and haemodynamic status". Due to the difficulty and inconsistency of these factors, it may be problematic to follow to entirely the optional values. Numerous reported union rates using external fixation for final management were high. Beltsios stated a 92% rate at 38.5 weeks of combined exposed and closed fractures that cured within 6 months using the same radiographic definition of union.[14] A study by Pukljak stated that most of patients have definitive treatment in the fixator, with union rate 47% for patients treated only using external fixation[19], this reinforced confidence that disasters or war surroundings can reduction the union rate. Our study presented that union rate reduction with increasing Gustilo/Anderson kind and nerve damage related with a

lower union rate probably due to the similar details stated in the section about infection. Concerning the kinds of fixators, use of the AO external fixator appeared to associate with lesser union rates. Lastly, the union rate in humerus fractures was higher than that in other bones, which may connected to a lower number Gustilo/Anderson. Fractures managed by definitive external fixation commonly take a longer period to heal when compared to internal fixation[10]; Good care has taken by the doctor and patient to prevent refracture afterward healing due to the quality of bone in the area is limited.[20]

CONCLUSION

Most patients with medium Speed of missile injury, all patients with Bipolar/2bar type of external fixation, full union radiological outcome, no significant association between age groups and speed of messile injury and radiological outcome.

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