

## Comparison of Time to Operation and Efficacies of Ultrasound-Guided Nerve Block and General Anesthesia in Emergency External Fixation of Lower Leg Fractures

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**Category:** Ankle, Trauma

**Keywords:** Ultrasound; Regional nerve block; Fracture; External fixation

**Introduction/Purpose:** This prospective study aimed to evaluate the usefulness of ultrasound (US)-guided nerve block (NB) for emergency external fixation of lower leg fractures, by investigating real time before the operation and the clinical result according to the anesthesia method (US-guided NB or general anesthesia [GA]).

**Methods:** From June 2014 to April 2016, 40 patients who underwent emergency surgery for external fixator application were enrolled in this study. We performed a randomized trial for US-guided NB and GA. We measured the lead time before the start of the operation after the decision to perform emergency surgery in both groups.

**Results:** The US-guided NB group comprised 17 men and 3 women with a median age of 55.6 (33–77) years. Twelve of these patients had conditions such as diabetes mellitus, hypertension, and kidney-related diseases. Fracture types 42, 43, and 44 in the AO classification were observed in 3, 12, and 5 cases, respectively. The average time taken to emergency operation was 4.3 (2–6.25) h. However, in the GA group, the average time taken to emergency operation was 9.4 (3–14) h. In the US-guided NB group, no cases of anesthesia failure and unstable vital signs during the operation occurred. Moreover, there were no postoperative complications related to the anesthesia method, such as aggravation of the general condition.

**Conclusion:** Emergency external fixation with US-guided NB in patients with lower-extremity trauma can be implemented in less time regardless of preoperative preparation, which is a requirement in GA.

**Orthopaedic Ultrasound--guided Nerve Block Record**

Patient Record : patient /guardian should fill out the information inside the Bold rectangle(  )!

Pre-anesthesia record	Patient's name		Sex/Age	/	Height/Weight	cm/ kg	Room no.		
	Medical history	None ( ) CRF ( ) Chronic liver disease ( )	DM ( ) Angina ( ) Myocardial infarction ( )	HTN ( ) Brain-associated ds. ( )	Psychiatric Hx. ( ) Buerger's ds. ( ) Etc. ( )	Past operation history ( yes , no )			
						Operation site (type)	Anesthesia type		
	Medication	None ( ) DM drug ( ) Insulin ( )	HTN drug ( ) Aspirin ( ) Blood circulation enhancer ( )	Osteoporosis drug ( ) NSAIDS ( ) Steroids ( )	Etc. ( ) - -				
Anesthesia time record	Anesthesia start time		hr min		Anesthesia procedure time		min		
	Anesthesia finish time		hr min						
	Time of feeling numbness		hr min		Anesthesia revelation time		min		
	Time of starting to feel pain		(the day / the next day) hr min		Painlessness maintenance time		hr		
The next day of Operation record	Time of awakening from anesthesia		(the day / the next day) hr min		Anesthesia recovery time		hr		
	VAS satisfaction score (out of 10)		0 1 2 3 4 5 6 7 8 9 10 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )						
	If you do the same surgery again, which anesthesia would you choose?		1. General anesthesia ( ) 2. Spinal anesthesia ( ) 3. Nerve Block ( )			If you have done general/spinal anesthesia in the past, how does it differ from this anesthesia?			
	Did you experience any inconvenience during the surgery? If yes, please explain. Which anesthesia would you choose in the future, and why?								
	Anesthesia complication	Vital monitoring Special note:	Pre-anes. & Pre-mida.BP(HR) ( / ( ) ) ( / ( ) ) Pre & Post-inflat. BP(HR) ( / ( ) ) ( / ( ) ) Intraop(mid-time) BP(HR) ( / ( ) ) Pre & Post-deflat. BP(HR) ( / ( ) ) ( / ( ) )						

Doctor's Record:

Tourniquet site :

Preoperative diagnosis:

Tourniquet time : min

Date	201 . . . . .	Patients ID		Ultrasound-guided	( yes , no )			
Anesthetics & Dosage	2% lidocaine ( )mL	1% lidocaine ( ) mL	0.75% ropiva. ( )mL	1% lido + 0.75% ropivacaine 1:1 mixture ( )mL				
Site	Thigh level (mL)	Femoral n.	Knee level (mL)	Proximal saphe. n.	Ankle level (mL)	Superficial peroneal n.	Foot level (mL)	
		Obtura. n.		Common peroneal n.		Deep peroneal n.		
	Lt.( ) Rt.( )	Sciatic n.	Lt.( ) Rt.( )	Tibia n.	Lt.( ) Rt.( )	Saphen. n.	Additional block	
		Post.femor. cutane. n.		Popliteal n. (Sciatic n.)		Sural n.	Site	Anesthe / Dosage
		Lat. femor. cutane. n.				Tibial n.		/
Sedation	Preop. 1 hr. im ( ) mg Op. room iv ( ) mg Additional iv ( ) mg	Tourniquet Pain min	Other Comment					

Nerve block treating doctor :

Doctor in charge : (sign)