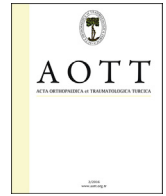


Contents lists available at [ScienceDirect](#)

Acta Orthopaedica et Traumatologica Turcica

journal homepage: <https://www.elsevier.com/locate/aott>

Treatment preferences in Turkey for open fracture of the tibial diaphysis

Güzelali Özdemir*, Barış Yılmaz, Baran Kömür, Evrim Şirin, Nazım Karahan, Erman Ceyhan

Fatih Sultan Mehmet Training and Research Hospital, Istanbul, Turkey

ARTICLE INFO

Article history:

Received 10 January 2016

Received in revised form

24 August 2016

Accepted 11 November 2016

Available online xxx

Keywords:

Antibiotics

Debridement

Fixation

Open fractures

Tibia

ABSTRACT

Objective: The purpose of this study was to investigate different treatment methods employed by orthopedic surgeons for open tibial fracture in adults.

Methods: Survey of 12 questions regarding treatment of open tibial fracture was conducted with 285 orthopedics and traumatology specialists in Turkey in personal interviews and using web-based technique.

Results: Of all survey participants, 99.6% responded that tetanus prophylaxis is necessary emergency procedure in cases of adult open tibial diaphysis fracture. In addition, 96.5% considered antibiotics administration necessary, 85.6% also selected irrigation with saline, 55.4% included debridement, and 45.3% temporary fixation. Only 4 (1.3%) respondents did not use aminoglycoside antibiotics. While 29.8% of those surveyed preferred external fixator as a definitive treatment method, 75.8% use intramedullary nail and 13.7% preferred plate method.

Conclusion: A wide variation was observed among orthopedics and traumatology specialists in Turkey regarding treatment of open tibial diaphysis fracture in adults. Data obtained from this study together with the available literature may be useful to further develop therapeutic approaches.

Level of evidence: Level V, Therapeutic Study.

© 2017 Turkish Association of Orthopaedics and Traumatology. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Among open fractures encountered in orthopedics and traumatology practice, open tibial diaphysis fracture is relatively common. Since the soft tissue around the tibia is thin, fracture of the tibia often breaks through the skin. These fractures are prone to various complications, particularly infection, which can affect treatment outcomes and increase morbidity and treatment costs.^{1,2} In addition to preserving life, extremities, and functionality, one goal of treatment is to prevent infection.

There is no current data in the literature regarding preferences and practices of orthopedics and traumatology experts in Turkey with respect to treatment of adult open tibial diaphysis fracture. Results of the current study may prove useful in developing therapeutic approaches.

Patients and methods

Survey respondents were 285 currently active orthopedics and traumatology specialists in Turkey.

Fractures of hand, finger, spine, and pelvis often require special approaches and additional expertise. However, fractures of long bones, particularly the tibia, are common and are most often treated by orthopedic surgeons. Gustilo-Anderson Classification was used in assessment of approach of orthopedic surgeons to all types of open tibial fracture and treatment variations.³

The survey, which was called “Treatment approaches to open tibial diaphysis fractures in adults,” comprised 12 questions, and was conducted with orthopedics and traumatology specialists in Turkey by personal interview or via email.

Survey questions used model of open tibia fracture. Questions related to situations requiring advanced reconstruction due to gunshot wound; open fracture with defect; fracture in patient with additional disease; fracture in children or geriatric patient; fracture of special region, such as spine, pelvis, hand, or finger; or fracture with vascular or nerve injury were not included.

* Corresponding author.

E-mail address: dr.guzelali@yahoo.com (G. Özdemir).

Peer review under responsibility of Turkish Association of Orthopaedics and Traumatology.

<http://dx.doi.org/10.1016/j.aott.2016.12.010>

1017-995X/© 2017 Turkish Association of Orthopaedics and Traumatology. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Only active professional orthopedics and traumatology specialists were surveyed; trainees, and those who are retired or not in active practice were excluded.

Survey questions inquired about early intervention practices, preferences in antibiotics and duration of use, preferences in type of fixation, performance of soft tissue reconstruction, and means of deciding necessity for amputation. Respondents were also asked about the type of institution at which they worked, years of expertise, type of institution at which they received their specialized education, and number of open tibia fracture cases they typically treated in a year. Response data were statistically analyzed using SPSS Statistics 22 software (IBM Corp., Armonk, NY, USA).

Results

Of total 2893 active orthopedics and traumatology specialists in Turkey, 9.85% were surveyed.⁴ Demographic data of survey participants are provided in Table 1.

Emergency interventions

Of all survey respondents, 99.6% agreed tetanus prophylaxis was required emergency procedure for case of adult open tibial diaphysis fracture. Furthermore, 96.5% also selected administration of antibiotics, 85.6% included irrigation with saline, 55.4% added debridement, and 45.3% included temporary fixation (Table 2).

Antibiotic preferences

Preferred antibiotics of participants according to type of open fracture are provided in Tables 3 and 4. For Type I open fracture, 96.5% preferred first-generation cephalosporin (Cef-1), 21.8% selected aminoglycoside (AG), 5.3% penicillin (Pen), and 2.8% replied "other." Response for preferred antibiotic for Type II open fracture was 96.5% Cef-1, 60.7% AG, 8.8% Pen, and 5.6% "other." Type IIIA/B open fracture preferences were 95.4% Cef-1, 96.8% AG, 30.5% Pen, and 23.9% "other." For Type IIIC open fracture, preferences were 94.4% Cef-1, 97.9% AG, 49.5% Pen, and 33.7% "other."

Antibiotic usage period

Average duration of antibiotic treatment favored by respondents for open tibia fracture was 4.21 ± 2.99 days (range: 1–15 days) for Type I, 4.81 ± 3.46 days (range: 1–21 days) for Type II, 5.86 ± 4.10

Table 1
Demographic data of the participants.

		n	%
Affiliation	State hospital	84	29.5
	Training and research hospital	102	35.8
	University hospital	61	21.4
	Private hospital	36	12.6
	Other	2	0.7
Experience in orthopedics	1–5 years	116	40.7
	6–10 years	94	33
	11–15 years	41	14.4
	16–20 years	18	6.3
	≥20 years	16	5.6
Training affiliation	Training and research hospital	134	47
	University hospital	146	51.2
	Other	5	1.8
Number of open tibia fractures treated per year	1–10	110	38.6
	10–20	100	35.1
	20–30	48	16.8
	30–40	12	4.2
	>40	15	5.3

Table 2
Emergency applications.

	n	%
1. Tetanus prophylaxis	284	99.6
2. Irrigation	244	85.6
3. Debridement	158	55.4
4. Antibiotic	275	96.5
5. Temporary fixation	129	45.3

Table 3
Antibiotic regimen according to open fracture type.

		n	%
Type I	First generation cephalosporin	275	96.5
	Aminoglycoside	62	21.8
	Penicillin	15	5.3
	Other	8	2.8
Type II	First generation cephalosporin	275	96.5
	Aminoglycoside	173	60.7
	Penicillin	25	8.8
	Other	16	5.6
Type IIIA/B	First generation cephalosporin	272	95.4
	Aminoglycoside	276	96.8
	Penicillin	87	30.5
	Other	68	23.9
Type IIIC	First generation cephalosporin	269	94.4
	Aminoglycoside	279	97.9
	Penicillin	141	49.5
	Other	96	33.7

days (range: 2–21 days) for Type IIIA/B, and 6.16 ± 4.38 days (range: 2–21 days) for Type IIIC (Table 5). Average duration of AG antibiotic use was 3.81 ± 1.96 days (range: 1–15 days). Only 4 (1.3%) of those surveyed stated that they did not use AG antibiotics.

Fixation preferences

Preferred method of fixation of Type I open fracture was 12.6% external fixator (EF), 93.7% intramedullary nail (IMN), 27.4% plate, and 1.8% "other" (Table 6). For Type II open fracture, responses were 23.9% EF, 87.4% IMN, 21.8% plate, and 0.7% "other." Fixation method favored for Type III A/B open fracture was 84.2% EF, 45.3% IMN, and 10.2% plate. Preferred fixation method for Type IIIC open fracture was 98.6% EF, 10.5% IMN, and 2.5% plate.

While 29.8% of the participants preferred EF as definitive treatment method, 75.8% continue with IMN and 13.7% continue with the plate method (Table 7).

Reamed or unreamed nails

When performing IMN fixation, 25.3% of the participants preferred to use unreamed nails, while 71.2% preferred reamed nails, and 3.5% use either reamed or unreamed nails, according to the case (Table 7).

Soft tissue reconstruction

When soft tissue reconstruction is needed in adult open tibial shaft fracture cases, 26% of participants stated that they routinely did it themselves, while 72.6% stated that they did not. Remaining 1.4% said sometimes they did it themselves and sometimes with assistance (Table 7).

Amputation decision

While 63.2% of the participants made decision regarding limb salvage or amputation based on the Mangled Extremity Severity

Download English Version:

<https://daneshyari.com/en/article/8795572>

Download Persian Version:

<https://daneshyari.com/article/8795572>

[Daneshyari.com](https://daneshyari.com)