



Attempted ankle fracture reduction by emergency and orthopaedic doctors

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Audit study

- Fresh ankle fracture reduction
- Emergency Physicians
- Orthopaedic surgeons
- Junior and senior trainees

- Accident and Emergency Department

Our study

- 2008-2012, 3282 ankle fracture
- A&E, Leeds General Infirmary
- ≥18 years of age
- ASA I
- Closed injury and displaced fracture
- Manipulation and splinting.

Our study

- Clinical and operative variables
- 2154 patient satisfied these criteria
- Verbal consent

- Attempted reduction: A&E physicians
- 1-2 attempts of fracture reduction before being referred

On-call orthopaedic team

- Reduction – unsatisfactory
- Re-attempt fracture reduction

- Satisfactory reduction was not achieved
- External fixator - before definitive management

Description of data collection

- (1) No. reduction attempts by A&E
- (2) No. reduction attempts by T&O
- (3) Fracture type - associated dislocation
- (4) Grade of the doctor
- (5) On-call duration: day shift or night shift
- (6) On-call time: start, middle or end of the rotation
- (7) Rotation interval: February, May, August and Nov

A&E Doctors

	Uni-malleolar fractures			Bi-malleolar fractures		
	Total cases	Successful reduction	Successful reduction	Total cases	Successful reduction	Successful reduction
All patients in study	1144	852 (12D)	74.5%	821	516 (13D)	62.9%
1 attempt by A&E	826	607 (8D)	73.5%	738	454 (10D)	61.5%
A&E consultants	171	156 (4D)	91.2%	144	109 (4D)	75.7%
A&E registrars	422	318 (3D)	75.4%	481	322 (5D)	66.9%
A&E junior grades	233	133 (1D)	57.1%	113	23 (1D)	20.1%
2 attempts by A&E	318	245 (4D)	77.0%	83	62 (3D)	74.7%
A&E consultants	0	0 (0D)	-	0	0 (0D)	-
A&E registrars	201	155 (2D)	77.1%	62	46 (1D)	74.2%
A&E junior grades	117	90 (2D)	76.9%	21	16 (1D)	76.2%
Failed reduction referred to T&O	292	-	-	305	-	-

A&E Doctors

	Tri-malleolar fractures		
	Total cases	Successful reduction	Successful reduction
All patients in study	189	137 (26D)	72.5%
One attempt by A&E	116	82 (17D)	70.7%
A&E consultants	42	33 (2D)	78.6%
A&E registrars	56	43 (15D)	76.8%
A&E junior grades	18	6 (0D)	33.3%
Two attempts by A&E	73	55 (9D)	75.3%
A&E consultants	18	13 (0D)	72.2%
A&E registrars	40	34 (9D)	85.0%
A&E junior grades	15	8 (0D)	53.3%
Failed reduction referred to T&O	52	-	-

Total no. of patients = 2154	Total no. of successful reductions = 1505	Percentage of successful reductions = 69.9
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T&O Doctors

	Uni-malleolar fractures			Bi-malleolar fractures		
	Total cases	Successful reduction	Successful reduction	Total cases	Successful reduction	Successful reduction
All patients in study	292	264	90.4%	305	268	87.9%
1 attempt by T&O	229	203	88.6%	246	218	88.6%
T&O registrars	181	166	91.7%	193	186	96.4%
T&O junior grades	48	37	77.1%	53	32	60.4%
2 attempts by T&O	63	61	96.8%	59	50	84.7%
T&O registrars	47	47	100.0%	49	44	89.8%
T&O junior grades	16	14	87.5%	10	6	60.0%
Failed reduction – sent to theatres	28 (6D)	-	-	37 (14D)	-	-

T&O Doctors

	Tri-malleolar fractures		
	Total cases	Successful reduction	Successful reduction
All patients in study	52	38	73.1%
One attempt by T&O	39	31	79.5%
T&O registrars	35	29	82.9%
T&O junior grades	4	2	50.0%
Two attempts by T&O	13	7	53.4%
T&O registrars	13	7	53.4%
T&O junior grades	0	0	-
Failed reduction – sent to theatres	14 (9D)	-	-

Total no. of patients = 649	Total no. of successful reductions = 570	Percentage of successful reductions = 87.8
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Successful reduction	Uni-mallolar fractures	
	Pearson's coefficient	P value
All patients managed by A&E	0.64	0.05
One attempt by A&E	0.62	0.07
A&E consultants	<u>0.88</u>	<0.001**
A&E registrars	0.63	0.03*
A&E junior grades	0.32	0.422
Two attempts by A&E	0.63	0.043*
A&E consultants	-	
A&E registrars	0.68	0.03*
A&E junior grades	0.64	0.04*
All patients managed by T&O	<u>0.81</u>	<0.001**
One attempt by T&O	0.78	<0.01*
T&O registrars	<u>0.81</u>	<0.001**
T&O junior grades	0.67	0.04*
Two attempts by T&O	<u>0.84</u>	<0.001**
T&O registrars	<u>0.93</u>	<0.001**
T&O junior grades	<u>0.77</u>	0.01*

Successful reduction	Bi-mallolar fractures	
	Pearson's coefficient	P value
All patients managed by A&E	0.58	0.081
One attempt by A&E	0.52	0.083
A&E consultants	<u>0.69</u>	0.04*
A&E registrars	0.58	0.079
A&E junior grades	0.11	
Two attempts by A&E	0.63	0.02*
A&E consultants	-	-
A&E registrars	<u>0.69</u>	0.03*
A&E junior grades	<u>0.63</u>	0.07
All patients managed by T&O	0.86	<0.001**
One attempt by T&O	<u>0.73</u>	<0.01*
T&O registrars	<u>0.88</u>	<0.001**
T&O junior grades	0.51	0.065
Two attempts by T&O	<u>0.72</u>	<0.01*
T&O registrars	<u>0.86</u>	<0.001**
T&O junior grades	0.52	0.045*

Successful reduction	Tri-mallolar fractures	
	Pearson's coefficient	P value
All patients managed by A&E	0.67	0.06
One attempt by A&E	0.59	0.081
A&E consultants	0.63	0.08
A&E registrars	0.67	0.05
A&E junior grades	0.14	
Two attempts by A&E	<u>0.63</u>	0.02*
A&E consultants	<u>0.61</u>	0.045*
A&E registrars	<u>0.72</u>	0.01*
A&E junior grades	0.41	0.163
All patients managed by T&O	<u>0.64</u>	0.04*
One attempt by T&O	<u>0.68</u>	0.03*
T&O registrars	<u>0.72</u>	0.02*
T&O junior grades	0.42	0.159
Two attempts by T&O	0.41	0.154
T&O registrars	0.41	0.154
T&O junior grades	-	-

No significance

- On-call duration: day shift or night shift.
- On-call time: start, middle or end of the rotation.
- Rotation interval : February, May, August and Nov.

Conclusion

- Observation is from a small cohort
- A&E 70% - T&O 89%
- Rate of successful reduction correlates with clinical seniority
- European working time directives, work load and training purposes

Thank you

- Questions?