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Retrospective analysis of postoperative interventions in mandibular fractures: a shift towards outpatient day surgery care

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Abstract

The management of fractured mandibles typically involves admission and operation at the time of presentation. While this should involve only a short stay in hospital these patients are surgically stable, and so priority is often given to more urgent cases. We retrospectively evaluated the postoperative medical requirements of patients who were operated on at Fiona Stanley Hospital, Perth, Western Australia between 1 January 2015 and 31 December 2016. Patients were excluded if they had had multiple facial fractures, multiple injuries, had fractures that were comminuted or in edentulous mandibles, and those who had been in hospital for preoperative medical investigations and care. We also excluded fractures in children aged 16 years and under. The results showed that of a total of 173 patients, 12 had had medical consultations during their hospital stay, and only four had required intervention. The mean (range) preoperative time was 37 (1 - 46) hours and that from operation to discharge 21.5 (2 - 93) hours. While traditional management involves emergency admission and open reduction and internal fixation as soon as possible, delays of up to five days were not associated with appreciably worse outcomes. This, together with the negligible requirements for medical management perioperatively, provides a strong argument for a selected group to be treated as outpatients.

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Keywords: Mandible fractures; Treatment timing; Cost; Day surgery; Outpatient

Introduction

Between 30% and 70% of injuries to the facial skeleton are mandibular fractures,^{1–3} which are often caused by interpersonal violence,^{4,5} motor vehicle collisions, or falls.³ In most units patients are admitted as emergencies and, if indicated, have open reduction and internal fixation as soon as possible.

There are several proposed reasons for this: it reduces the risk of infection, relieves pain, and early apposition of fractures improves healing.⁶

Despite this, treatment is often delayed by emergencies from other specialties, which can increase duration of admission that are costly to the hospital and can cause patients anxiety and frustration.

We retrospectively evaluated patients who were admitted to Fiona Stanley Hospital, Western Australia, between 1 January 2015 and 31 December 2016, to establish the need for a perioperative stay in hospital and in doing so to support the role of day surgery.

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Table 1
Cases included in the study.

	2015	2016	Total
Total cases found	102	101	203
Cases included	81	92	173
Exclusions (clinical)	15	7	22
Exclusions (data)	6	1	7

Patients and methods

We recorded the number of fractured mandibles that had been treated within the maxillofacial unit using the International Classification of Disease (ICD) coding system, and included the procedures used to treat them, such as open reduction and internal fixation, and maxillomandibular fixation.

Patients were included if they had been operated on under general anaesthesia for an isolated mandibular fracture (condylar or non-condylar, or both). Condylar fractures were included only if they were treated as part of the initial admission. Patients were excluded if they were younger than 16 years of age, had multiple injuries, or if their fractures were either comminuted or in an edentulous mandible.

Patients who did not have sufficient information in their medical records were also excluded from the study, but none were omitted specifically because of pre-existing medical conditions.

Ethics approval was obtained from the hospital ethics committee.

Table 2
Data collected from patients' electronic records. Data are number (%) unless otherwise stated.

	2015	2016	Total
No.	81	92	173
Mean (range) age (years)	28 (16-60)	29 (16-81)	28.5(16-81)
Sex			
Male	72	76	148
Female	9	16	25
Time to presentation (hours)			
<24:	46	42	88 (50)
24-48:	13	9	22 (13)
48-72:	7	14	21 (12.5)
72-96:	4	9	13 (7.5)
96-120:	2	5	7 (4)
120-144:	1	0	1 (0.5)
>144	8	13	21 (12.5)
Time to theatre (hours)	35 (1-146)	39 (2-137)	37.1 (1-146)
Time from theatre to discharge (hours)	22 (2-46)	21 (3-93)	21.5
Type of list:			
Elective	30	15	45
Emergency	51	77	128
Mean (range) duration of stay (days)	3 (1-6)	3 (0-9)	3
Medical consultation sought in the postoperative period	10	2	12
Medical interventions	4	1	
	Rash (given antihistamine)	Urinary retention (indwelling catheter inserted)	
	Scrotal haematoma (clinical review with no intervention)		
	Wheezing (given bronchodilator)		
	Urinary retention (indwelling catheter inserted)		

Results

Of the 203 patients selected, 22 were excluded and an additional eight could not be included because of insufficient information, which left a total of 173 patients (Table 1). Table 2 shows the specific breakdown of the results.

Age and sex

The mean age (range) was 28.5 (16 – 81) years, which is consistent with previously published data.^{1,7} A total of 143 (86%) were male 14% (25) were female, which again reflects previous research.^{7,8}

Time from injury to presentation

Half the patients presented within the first 24 hours after injury and others were evenly distributed between days two, three, and six.

Time from admission to operation

The mean (range) duration from admission to operation was 37 (1 – 146) hours, and that to discharge 21.5 (2 - 93) hours. As expected, 128 patients (74%) were treated as emergencies, compared with 45 (26%) on the elective list. Emergency lists are used by many different teams within the hospital and patients selected by triage and managed by the anaesthetist

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