Complications of mandibular fractures

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Inpatient and outpatient treatment of mandibular fractures with respect to time interval between injury and treatment.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients who are at least 16 years old.

Setting
Tertiary referral medical centre. The study was carried out at the University of Miami/Jackson Memorial Hospital, USA.

Dates to which data relate
Effectiveness and resource use data were collected between 1 July 1994 and 30 June 1996. The price year was not stated.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken on the same patient sample as that used in the effectiveness study. The costing was carried out prospectively alongside the effectiveness study.

Study sample
The study sample was 308 consecutive patients with a minimum of 6 weeks of follow-up who were at least 16 years old. 59 patients were subjected to MMF, 40 patients to MMF and IOW, and 172 patients to MMF and plates. No power calculations or exclusion criteria were reported.

Study design
This was a retrospective cohort study carried out at a single centre. The duration of follow-up varied from 6 weeks to 2 years. No patients were lost to follow-up.
Analysis of effectiveness
The analysis of effectiveness was based on the intention to treat principle. The primary health outcomes studied included time from injury to diagnosis, time from admission to surgery, treatment modality and complication rates. The authors did not report whether groups were comparable in terms of demographic characteristics.

Effectiveness results
Time from injury to diagnosis varied from 1 hour to 210 days (mean, 2.74 days). Average time from admission to surgery was 2.86 days. Infection accounted for more than half of all complications, followed by malunion and malocclusion. Patients who underwent MMF and IOW had a greater number of angular fractures and associated TILFs. Patients who underwent MMF and plates demonstrated a longer delay until undergoing treatment. A higher complication rate was detected when treatment was completed in either an interval less than 3 days or greater than 10 days.

Clinical conclusions
Patients who received treatment 3 to 10 days following injury were found to have a lower complication rate than for earlier or later repair.

Modelling
No modelling was undertaken.

Measure of benefits used in the economic analysis
The overall complication rate was chosen as the measure of benefit.

Direct costs
Costs were not discounted. Quantities and costs were not reported separately. Direct costs included costs related to each treatment modality. The quantity/cost boundary adopted was that of the hospital. The estimation of quantities and costs was based on a random sample of 10 patients chosen from each treatment group. The source of quantity/cost data was the University of Miami/Jackson Memorial Hospital. The price year was not stated.

Statistical analysis of costs
Not reported.

Indirect Costs
Not included.

Currency
US dollars ($).

Sensitivity analysis
Not reported.

Estimated benefits used in the economic analysis
The overall complication rate was 15% for MMF, 17.5% for MMF and IOW, and 14.5% for MMF and plates.
Cost results
For inpatient management, costs were $8,828 for MMF, $9,586 for MMF and IOW, and $19,481 for MMF and plates. For outpatient management, costs amounted to $2,541 for MMF, $6,146 for MMF and IOW, and $8,254 for MMF and plates.

Synthesis of costs and benefits
Not reported.

Authors' conclusions
The results support an individualised approach to the treatment of mandibular fractures. Urgent reconstruction within 3 days of injury is rarely indicated. Repair with a sense of urgency in operating room utilisation should be the norm. For compliant patients with isolated and non-complex mandibular fractures, outpatient management should be strongly considered.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparators was clear. The a priori assumption was that most patients with mandibular fractures can be managed on an outpatient basis which would result in considerable savings in cost as well as resulting in the timely relief of pain, the restoration of function and a reduction in complication rate.

Validity of estimate of measure of benefit
The relevant measure of benefit was examined. The authors acknowledged that the results depend on the experience of the surgeon who carries out the treatment. Groups may not have been comparable when the criterion of allocation was time until treatment. The results of the statistical analysis of effectiveness measures were not reported.

Validity of estimate of costs
Only direct costs were included and costs were not discounted although the follow-up extended to 2 years. Cost results for subgroups were not subjected to statistical analysis.

Other issues
The study suffered from small sample size for certain subgroups. The generalisability of the results to other settings/countries was not examined.

Source of funding
None stated.

Bibliographic details

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9746081

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Adolescent; Adult; Aged; Ambulatory Care /economics; Bone Wires /economics; Cost-Benefit Analysis; Female; Fracture Fixation, Internal /economics /methods; Humans; Male; Mandibular Fractures /economics /surgery; Middle Aged; Patient Admission /economics; Postoperative Complications /economics /etiology /surgery; Reoperation; Retrospective Studies

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