Table 2

Author, date, country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Uchino <i>et al</i> , 2004, Australia (multicentre study in 23) countries	1743 patients in intensive care units on renal replacement therapy or with acute renal failure (using pre-defined criteria). 70% of patients were treated with diuretics at study inclusion. Frusemide was the most commonly used diuretic (98%)	Prospective multi-centre (54 centres), multinational (23 countries) cohort study. Three distinct multivariate analyses were performed using propensity scoring	Unadjusted hospital mortality rates Adjustments using three multivariate models	Diuretic group (62.4%) v controls (57.1%). Odds ratio mortality 1.25 ($p<0.03$) Overall odds ratio mortality similar for all three methods. Odds ratio 1.21–1.22 (CIs 0.92 to 1.6), $p=0.10$ to $p=0.153$	Observational cohort Heterogeneity of care across 23 countries Analytical methods can only adjust for observed confounding variables not unobserved ones
Mehta <i>et al</i> , 2002, USA	552 critically ill patients with acute renal failure in four ITUs in California. 326 patients (59%) were treated with diuretics	Prospective cohort study October 1989 to 1995	Relationship between diuretic use and mortality and non-recovery of renal function Odds ratio of death when patients who died in week 1 were excluded Overall in-hospital mortality	Increased risk of death and non-recovery of renal function with diuretic use. Odds ratio 1.77 (CIs 1.14 to 2.76) in group given diuretics Odds ratio of death 3.12 (CIs 1.73 to 5.62) Odds ratio 1.68 (CIs 1.06 to 2.64)	Prospective observational cohort study Patients given diuretics were likely to be older and more likely to have a history of CCF ($p<0.001$) and had lower measured cardiac index ($p<0.001$) Some inclusion criteria debatable

The question of whether an RCT can be justified on the basis of these observational findings is debatable.

► CLINICAL BOTTOM LINE

In critically ill patients with acute renal failure, there is no evidence to suggest that the use of loop diuretics reduces mortality, reduces length of ITU/hospital stay, or increases the recovery of renal function.

Uchino S, Doig GS, Bellomo R, *et al*. Beginning and Ending Supportive Therapy for the Kidney (B.E.S.T. Kidney) Investigators. Diuretics and mortality in acute renal failure. *Crit Care Med* 2004;**32**(8):1669–77.

Mehta RL, Pascual MT, Soroko S, *et al*. Diuretics, mortality, and nonrecovery of renal function in acute renal failure. *JAMA* 2002;**288**(20):2547–53.

Kocher's or Milch's technique for reduction of anterior shoulder dislocations

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Abstract

A short cut review was carried out to establish whether Kocher's or Milch's technique was better at reducing shoulder dislocations. A total of 304 papers were found of which one answered the three part question. The clinical bottom line is that the individual preference of physicians for either Kocher's or Milch's method of reduction is not supported by the evidence.

Three part question

In an [adult patient with an anterior dislocation of the shoulder] is [Kocher's or Milch's technique] best at achieving [a successful, uncomplicated reduction]?

Clinical scenario

A 25 year old man presents to your emergency department with a right shoulder injury following a rugby tackle. Clinical examination and a series of shoulder X rays reveal an anterior shoulder dislocation with no associated neuro-vascular deficit or fracture. You wonder whether Kocher's or Milch's technique would be most successful in reducing the dislocation without complication.

Search strategy

Medline 1966 to May 2006 using the OVID interface: ([exp shoulder dislocation OR shoulder dislocation.mp OR dislocated shoulder.mp] AND [exp manipulation orthopedic OR manipulation orthopaedic.mp OR manipulation.mp OR reduction.mp OR Kocher\$.mp OR Milch\$.mp]) limited to human and English language. Cochrane, Edition 2, 2006: Shoulder dislocation.

Search outcome

A total of 304 papers were found on Medline of which only one addressed the question (table 3). There were a total of 97 Cochrane citations; the same paper was found.

Comment(s)

This was the only paper found that compared Kocher's and Milch's techniques in attempting to reduce an anterior dislocation of the shoulder. The data presented are not internally consistent and the results presented are not statistically significant.

No firm conclusions can be drawn from this paper. The results suggest, however, that Milch's technique should be tried initially as it is possibly less traumatic than Kocher's technique, albeit slightly less effective. Larger trials are needed to confirm this.

► CLINICAL BOTTOM LINE

The individual preference of physicians for either Milch's or Kocher's method of reduction is not supported by the evidence.

Beattie TF, Steedman DJ, McGowan A, *et al*. A comparison of the Milch and Kocher techniques for acute anterior dislocation of the shoulder. *Injury* 1986;**17**(5):349–52.

Table 3

Author, date, country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Beattie <i>et al</i> , 1986, UK	111 consecutive patients (age range 16–89) presenting to an accident and emergency department with an anterior dislocation of the shoulder without a fractured neck of humerus or neurovascular damage	RCT with crossover design. Patients were randomised based on whether they presented on an odd or even date. Manipulation was performed by one of four investigators, all of whom were “experienced in each technique”. It is not stated whether analgesia ± sedation had been given to the patients. On even dates a single attempt of Kocher’s method was performed (n = 55) and on odd dates a single attempt of Milch’s method was performed (n = 56). If the first of either technique was unsuccessful, a single second attempt was made using the alternative method. If the second attempt failed, then further manipulation was performed under GA. Reduction was confirmed both clinically and radiologically	Successful reduction	Kocher’s technique was slightly more successful than Milch’s technique (77% compared to 75% including first and second attempts (ie, combining pre and post cross over attempts)), however this failed to reach statistical significance	<ol style="list-style-type: none"> 1. No sample size estimates were performed, perhaps leading to the results failing to reach statistical significance 2. There is no mention of ethical approval 3. The method of randomisation used may have introduced bias 4. The lack of information regarding analgesia and sedation makes it difficult to ascertain whether the results are valid and reliable 5. The trial was unblinded, but this seems to have been unavoidable 6. It is unclear whether the groups were comparable at baseline 7. The results are largely presented in the form of percentages which have been rounded to the nearest whole number. There is a discrepancy in the number of patients documented to have gone on to require GA (n = 11) and the number seeming to have had a failed reduction on the second attempt (n = 6.104) (based on calculations performed using the percentages given in the paper) 8. The statistical methods used have not been defined 9. The authors’ conclusions are not based on statistically significant results

GA, general anaesthesia.

Hyperbaric oxygen therapy in acute fracture management

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Abstract

A short cut review was carried out to establish whether hyperbaric oxygen therapy (HBOT) is advantageous in fracture healing. A total of 26 citations were found of which one answered the three part question. The clinical bottom line is that there is insufficient evidence to support the use of hyperbaric oxygen therapy for fracture healing.

Three part question

[In patients with acute fractures of the metatarsals] does the use of [hyperbaric oxygen] enhance [fracture healing and reduce the time to return to normal activity]?

Clinical scenario

A footballer presents to the emergency department having sustained a foot injury in a blatant and unnecessary foul

on the edge of the opponents’ penalty box. X ray confirms a fracture of the 4th metatarsal which you decide can be treated conservatively. The patient mentions to you that he has heard of certain footballers with similar injuries having “oxygen therapy” to speed up their recovery. You wonder if there is any evidence to support this form of treatment.

Search strategy

Cochrane Database Issue 2, 2006. Medline 2003 to May 2006: [bone fracture.mp. or exp Fractures, Bone/ or exp “Bone and Bones”/ or bone break.mp. or fracture.mp. or exp Fracture Healing/] AND [oxygen.mp. or exp Oxygen/ or exp Oxygen Inhalation Therapy/ or exp Hyperbaric Oxygenation/ or hyperbaric oxygen.mp. or barotherapy.mp. or exp Atmosphere Exposure Chambers/ or HBOT.mp.] limit to (humans and english language and yr = “2003–2006”)

Search outcome

There was one Cochrane review first published in January 2005 (searched to 2003) (table 4). Therefore, Medline was searched from 2003. A total of 206 papers were found in the Medline search, but none were relevant to the question.

Table 4

Author, date, country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Bennett <i>et al</i> , 2005, Australia	RCTs comparing HBOT with no, or sham HBOT in any patient with a bone fracture	Systematic review	1. Bone union, 2. time to bone union	No RCTs were found to support or refute the use of hyperbaric oxygen in fracture healing	None

HBOT, hyperbaric oxygen therapy; RCT, randomised control trial