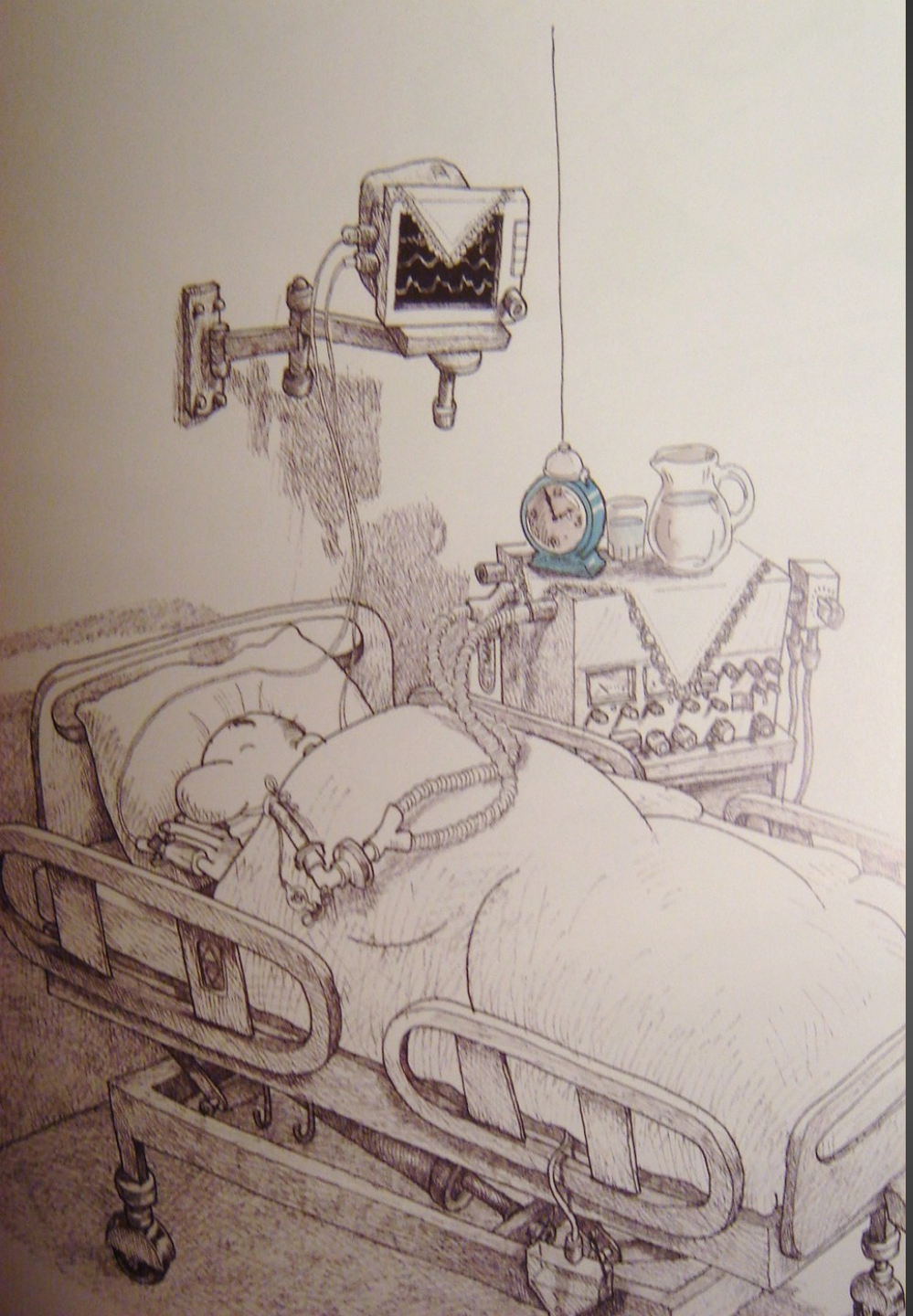


Pain Management Update

Yrd.Doç.Dr. Özgür SÖĞÜT
Harran Üniversitesi, Tıp Fakültesi,
Acil Tıp Anabilim Dalı, Şanlıurfa

Ağrı, kritik hastalarda taşikardiye, miyokardın oksijen kullanımında artışa, hiperkoagulabiliteye ve katabolizmanın artmasına neden olmaktadır

Soliman HM . Sedative And Analgesic practice in the ICU;
The results of an european survey. BR J Anaesth 2001;87:186-92

Ağrı

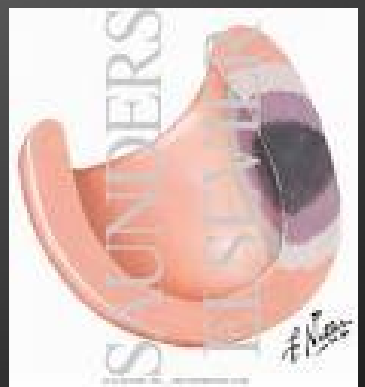
Sempatik hiperaktivite

Kalp hızı,

Kan basıncı,

Myokardın oksijen tüketimi

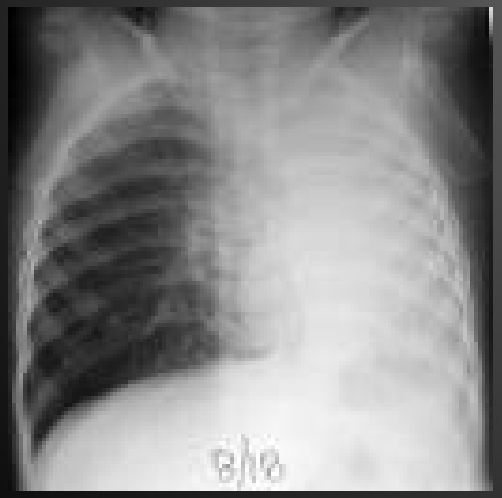
Miyokard iskemisi



Ağrı

Göğüs duvar hareketi

Diyafram hareketi



Atelektazi

Akut ağrılı hastada analjezi:

- Hasta konforunu artırır
- Stres cevabını baskılar
- Anksiyeteyi azaltır
- Ventilatör desteğine toleransı artırır
- Uykuyu destekler
- Hemşire/doktor bakımını kolaylaştırır
  (aspirasyon ,invaziv girişimler,pansumanlar)

SPECIAL ARTICLE

Anesthesiology 2002; 96:1004–17

Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists

An Updated Report by the American Society of Anesthesiologists Task Force on Sedation and Analgesia by Non-Anesthesiologists

European Journal of Anaesthesiology 2007; **24:** 563–567
© 2007 Copyright European Society of Anaesthesiology
doi: 10.1017/S0265021507000452

Guidelines

Guidelines for sedation and/or analgesia by non-anaesthesiology doctors

SECTION and BOARD OF ANAESTHESIOLOGY[1], European Union of Medical Specialists

Working Party on Sedation by non-anaesthesiology doctors J. T. A. Knape[*], H. Adriaensen[†], H. van Aken[¶], W. P. Blunnie[‡], C. Carlsson[§], M. Dupont[‖], T. Pasch[**]

TÜRK ANESTEZİYOLOJİ VE REANİMASYON DERNEĞİ
(TARD)

ANESTEZİ UYGULAMA KILAVUZLARI

AMELİYATHANE DIŞI ANESTEZİ UYGULAMALARI

Kasım 2005

Sedasyon ve Analjezi Uygulamalarınada Klavuzların Önerileri

1. Hastanın değerlendirilmesi
2. Girişim öncesi hazırlık
3. Monitorizasyon
   - İnteraktif
   - Mekanik

Değerlendirme ve Hazırlık

- Allerji öyküsü
- Kullandığı ilaçlar
- Geçirilmiş hastalıklar
- Havayolu (kısa boyun, küçük mandibula, büyük dil, trismus)

Girişim Öncesi Hazırlık

- Bilgilendirilmiş Onam
- En son yiyecek ve içecek alım zamanı
- Aspirasyon riski

  -Dolu Mide

  -Obezite

  -Gebelik

Monitörizasyon

- İnteraktif
  - Bilincin görsel ve verbal izlemi (hekim)
- Mekanik
  - KB
  - Nabız
  - SpO2
  - SS
  - ET_{CO2}

Monitörizasyon

- Sedasyon ve analjezide puls oksimetre kullanımı standarttır.

Eğer hastanın parmağını perfüze ediyorsanız; öyleyse kalbi, beyni ve diğer vital organları da perfüze ediyorsunuzdur.

- Mehr EH, Poznak AV. Spinal cord tumor. In: Yao FF Ed. Yao&Artusio's Anesthesiology Problem-Oriented patient management. (4th ed.) Philadelphia, Lippincott-Raven, 1999:482-491.

Sistemik Analjezikler

- Opioid (Narkotik) analjezikler
  - Morfin
  - Meperidin
  - Fentanil
  - Tramadol
- Non-opioid analjezikler
  - Aspirin, Asetaminofen (Parasetamol), NSAİD
- Ketamin

OPİOİDLER

En çok kullanılanlar

- Morfin
- Meperidin (Petidin)
- Fentanil

OPİOİDLER

- Analjezi ile beraber sedasyon etkileri de vardır.
- Ağrı giderildiğinde hastada öfori yaparlar.

MORFİN

- Preperat adı: **Morfin® HCl** amp 10 mg/ml
- Etki: Analjezik, anksiyolitik, sınırlı amnezi
- Dozu: 0.1-0.15 mg/kg iv
- Etkinin başlangıcı: 5-15 dk
- Etki süresi: 3-4 saat

MORFİN

- Uzun süreli analjezide iyi bir şeçenektir.
- Çok yavaş verilmelidir.
- KAH'da Angina ve MI sırasında anksiyolitik ve analjezik etkisi
- Çocuklarda da kullanılabilir

MEPERİDİNE (Petidin)

- Preperat adı: **Aldolan®** amp 100 mg/2ml
- Etki: Analjezik, anksiyolitik, sınırlı amnezi
- Dozu: 0.75-1.0 mg/kg iv
- Etkinin başlangıcı: 10-20 dk
- Etki süresi: 2-3 saat

MEPERİDİNE (Petidin)

- AS'te fentanil ve morfine göre daha az tercih edilir. (histamin deşarjına daha fazla neden olur)

- KC'de Normeperidine dönüşüp daha sonra renal yolla atılır.

MEPERİDİNE (Petidin)

- Morfine göre hipnotik,bulantı,kusma yapıcı etkisi daha azdır.
- Direkt myokard depresyonu (Kardiyak hastalık!!!)
- Gebede kullanılabilir.

FENTANİL

- Preperat adı: **Fentanyl®** amp 50 µg/ml (0,05mg/ml)
- Etki: Analjezik, anksiyolitik, sedasyon
- Dozu: 1-5 µg/kg iv
- Etkinin başlangıcı: <30 sn
- Etki süresi: 20-40 dk
- Çok yavaş verilmelidir

OPİOİD ANTAGONİSTİ

Naloxone® HCl amp 0.4 mg/ml

- Saf μ opioid resp. antagonisti
- Morfin, Meperidine, Fentanil
- Başlangıç ½-1 amp (0.2-0.4 mg IV)
- 5 ampul'e kadar (2 mg) çıkılabilir
- 15-30 dk etki başlar
- Diagnostik amaçlı

Non-Opioid Analjezik-PARASETAMOL

- Preperat adı: **Perfalgan®** 10 MG/ML 100 ML
- Etki: Hafif-Orta şiddete Analjezik
- İnfüzyon Dozu: 10-15mg/kg Günde 4 kez tekrarlanabilir
- Yetişkinde 1 flk (1000mg) bir seferde
- Kardiyovasküler hastalığı olanlarda güvenilir
- Karaciğer yetmezliğinde kontrendikedir
- 15 dk'dan hızlı verilmemelidir (15-30 dk)

Ketamin (Ketalar®)
1 ml/50 mg 10 ml amp

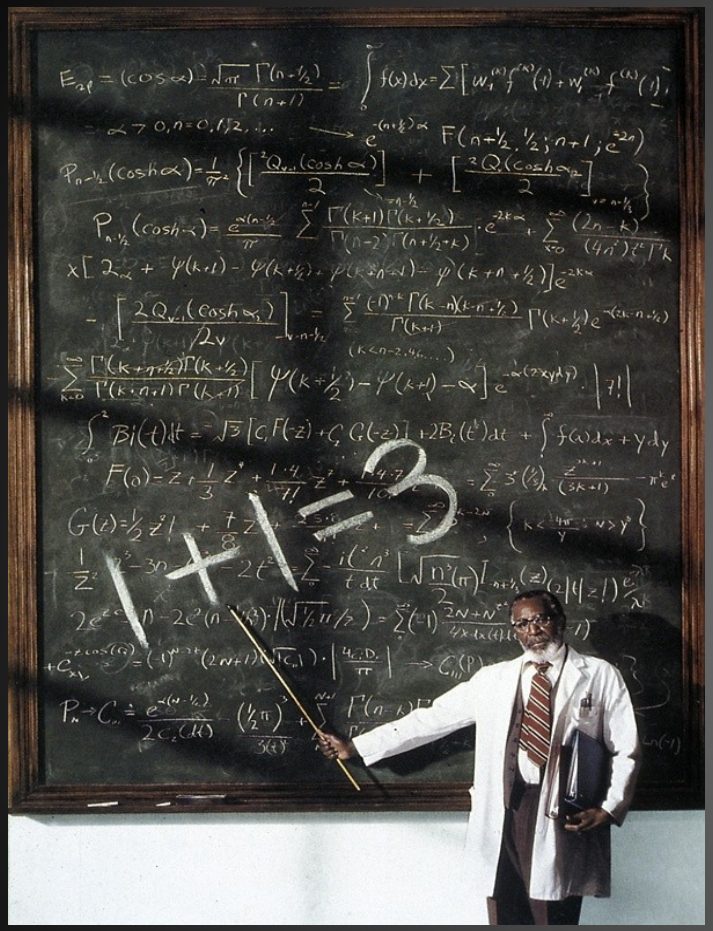
- Taşikardi
- Sistemik ve pulmoner hipertansiyon
- Kardiyak outputta artış
- Halusinasyon,deliryum
- Kafa içi basıncında artış

→ YBÜ.lerinde tercih edilmiyor

Doz: IV 1-2 mg/kg, IM 3-5 mg/kg

Kanıta Dayalı Tıp

- Amerikan Acil Tıp Hekimleri Derneği
  - Class A
    - Girişimsel sedasyon ve analjezi uygulamalarında ketaminin çocuklara uygulanması
  - Class B
    - Midazolam-Fentanil kombinasyonunun acil servislerde girişimsel sedoanaljezi için etkili ajanlar olduğu



SEDATİF VE OPİOİDLERİ BİRLİKTE KULLANMA

KOMBİNASYONLAR

- ***Fentanil + Midazolam***
- ***Morfin veya Meperidine + Midazolam***
- Midazolam + Ketamin
- Propofol + Fentanil
- Tiopental + Fentanil
- Etomidate + Fentanil

ÖNERİ

1. Damar yolu
2. Muayene ve vitaller
3. Pulse-oksimetre ve oksijen, EKG monitör
4. Gerekli malzemeler
5. Fentanil 100 µg 60 sn'de,
   gerekli ise 3-5 dk'da 50- 100 µg ek doz
6. Yeniden değerlendirme

ÖNERİ - 2

7. Midazolam 1 mg 30-60 sn'de,
   gerekli ise 3-5 dk'da bir 1 mg ek dozlar
8. Yeniden değerlendirme
9. Girişim
10. Komplikasyon gelişir ise müdahale
11. İzlem
12. Taburculuk önerileri

Taburculuk ???

- Vital bulguların en az 60 dakika boyunca stabil olması
- Anlaşılır konuşabilmesi, komutları rahatlıkla yerine getirebilmesi
- Solunum stresi bulgularının olmaması
- Baş dönmesi, bulantı, kusmanın olmaması
- Uyanık, oryante olması
- Ağız yoluyla ilaçlarını veya sıvıları içebilmesi
- Hastanın rahatlıkla yürüyebilir hale gelmesi
  (Çocuklar için desteksiz oturabilme)
- Acil servisten taburculuğunda hastaya refakat edecek birinin bulunması

Post anestezik derlenme skoru (Modifiye Aldrete skorlaması)

BİLİNÇ DURUMU	Tamamen uyanık ve oryante (isim, yer,zaman)	2
	Sesli uyarana yanıt mevcut	1
	Yanıt yok	0
AKTİVİTE	Tüm ekstremitelerini istemli olarak ve emirlere uygun hareket ettiriyor	2
	Sadece iki ekstremiteyi hareket ettiriyor	1
	Hareket yok	0
SOLUNUM	Derin soluyabiliyor ve öksürebiliyor	2
	Dispne, kısıtlı solunum veya takipne	1
	Apneik veya mekanik ventilasyon desteğinde	0
DOLAŞIM	Kan basıncının preanestezik ölçümün ± %20'si seviyesinde olanlar	2
	Kan basıncının preanestezik ölçümün ± %20-49'u seviyesinde olanlar	1
	Kan basıncının preanestezik ölçümün ± %50'si seviyesinde olanlar	0
OKSİJEN SATURASYONU	Oda havasında SpO_2 > % 92	2
	SpO_2 > %90 düzeyinde tutmak için O_2 desteğine ihtiyaç duyanlar	1
	O_2 desteğine rağmen SpO_2< %90 olması	0
TOPLAM SKOR	**İdeal olarak hasta toplam skoru 10 olduğu zaman taburcu edilmeli (minimum 9)**	

. (Aldrete JA. The post-anesthesia recovery score revisited.J Clin Anesth 1995;7:89–91.)

Özet

- 5. vital bulgu
- Genel memnuniyeti en çok etkileyen müdahale
- Şiddetli ağrılarda doğrudan güçlü ajan (opioidler) diğerlerinde P.O-IM olarak NSAID veya İV-PO Parasetamol verilebilir
- Acil serviste analjeziye bağlı komplikasyonların azaltılması için, uygun ilaçların titre edilerek uygun dozlarda kullanılması,
- Girişim öncesi, girişim sırasında ve sonrasında hastanın tekrar değerlendirilmesi gerekmektedir.
- Bilinç bzk. İleri yaş, riskli hasta, sosyokültürel durum analjeziyi engellememelidir.


THE COCHRANE
COLLABORATION®

ACUTE PAIN MANAGEMENT IN EMERGENCY DEPARTMENTS

Analgesia in specific conditions

Abdominal pain

- *Previous dogma suggested that analgesia should be withheld from patients with abdominal pain until a diagnosis is made.*

- **However there is good evidence showing that provision of early analgesia does not affect diagnostic accuracy in adults or children (McHale & LoVecchio 2001, Level I; Kim et al 2002, Level II; Thomas & Silen 2003, Level II; Thomas et al 2003, Level II).]**

- **This has been confirmed by other meta-analyses (Manterola, C, Astudillo, P, Losada, H, et al. 2007 Level I; Ranji, SR, Goldman, LE, Simel, DL, et al. 2006 Level I). [Cochrane Review].**

ACUTE PAIN MANAGEMENT IN EMERGENCY DEPARTMENTS

Analgesia in specific conditions

Renal colic

- *In patients with renal colic, NSAIDs provide better pain relief with fewer adverse effects and a decreased requirement for rescue analgesia, compared with opioids (Holdgate & Pollock 2004) [Cochrane Review]).*

- **NSAIDs or opioids provide effective analgesia for renal colic: NSAIDs reduce requirements for rescue analgesia and produce less vomiting compared with opioids (Holdgate, A and Pollock, T 2005)** *[Cochrane Review].*

Aromatherapy for pain management in labour

Caroline A Smith[1], Carmel T Collins[2], Caroline A Crowther[3]

[1]Centre for Complementary Medicine Research, University of Western Sydney, Penrith South DC, Australia. [2] Child Nutrition Research Centre, Women's and Children's Health Research Institute, Flinders Medical Centre and Women's and Children's Hospital; Discipline of Paediatrics, The University of Adelaide, Bedford Park, Australia. [3]ARCH: Australian Research Centre for Health of Women and Babies, Discipline of Obstetrics and Gynaecology, The University of Adelaide, Adelaide, Australia

Contact address: Caroline A Smith, Centre for Complementary Medicine Research, University of Western Sydney, Locked Bag 1797, Penrith South DC, New South Wales, 2751, Australia. caroline.smith@uws.edu.au.

Editorial group: Cochrane Pregnancy and Childbirth Group.
Publication status and date: Edited (no change to conclusions), published in Issue 8, 2011.
Review content assessed as up-to-date: 28 April 2011.

Main results

We included two trials (535 women) in the review. The trials found no difference between groups for the primary outcomes of pain intensity, assisted vaginal birth (risk ratio (RR) 1.04, 95% confidence interval (CI) 0.48 to 2.28, one trial, 513 women; RR 0.83, 95% CI 0.06 to 11.70, one trial, 22 women), and caesarean section (RR 0.98, 95% CI 0.49 to 1.94, one trial, 513 women; RR 2.54, 95% CI 0.11 to 56.25, one trial, 22 women); there were more babies admitted to neonatal intensive care in the control group of one trial (RR 0.08, 95% CI 0.00 to 1.42, one trial, 513 women) but this difference did not reach statistical significance. The trials found no differences between groups for the secondary outcomes of use of pharmacological pain relief (RR 0.35, 95% CI 0.04 to 3.32, one trial, 513 women; RR 2.50, 95% CI 0.31 to 20.45, one trial, 22 women), spontaneous vaginal delivery (RR 1.00, 95% CI 0.94 to 1.06, one trial, 513 women; RR 0.93, 95% CI 0.67 to 1.28, one trial, 22 women) or length of labour and augmentation (RR 1.14, 95% CI 0.90 to 1.45, one trial, 513 women). The risk of bias was low in the trials.

Authors' conclusions

There is a lack of studies evaluating the role of aromatherapy for pain management in labour. Further research is needed before recommendations can be made for clinical practice.

Music for pain relief

M Soledad Cepeda[1], Daniel B Carr[2], Joseph Lau[3], Hernando Alvarez[4]

[1]Pharmacoepidemiology, Johnson & Johnson Pharmaceutical Research and Development, Titussville, NJ, USA. [2]Department of Anesthesia, Tufts Medical Center, Boston, USA. [3]New England Medical Centre/Tufts Evidence-based Practice Center Institute for Clinical Research and Health Policy Studies, Tufts Medical Centre, Boston, MA, USA. [4]Anesthesia, Javeriana University, Bogota, Colombia

Contact address: M Soledad Cepeda, Pharmacoepidemiology, Johnson & Johnson Pharmaceutical Research and Development, PO BOX 200, M/S K304, Titussville, NJ, 08560, USA. scepeda@prdus.jnj.com. scepeda@tufts-nemc.org.

Editorial group: Cochrane Pain, Palliative and Supportive Care Group.
Publication status and date: Edited (no change to conclusions), published in Issue 8, 2010.
Review content assessed as up-to-date: 9 February 2006.

Citation: Cepeda MS, Carr DB, Lau J, Alvarez H. Music for pain relief. *Cochrane Database of Systematic Reviews* 2006, Issue 2. Art. No.: CD004843. DOI: 10.1002/14651858.CD004843.pub2.

Background

The efficacy of music for the treatment of pain has not been established.

Objectives

To evaluate the effect of music on acute, chronic or cancer pain intensity, pain relief, and analgesic requirements.

Search methods

We searched *The Cochrane Library*, MEDLINE, EMBASE, PsycINFO, LILACS and the references in retrieved manuscripts. There was no language restriction.

Selection criteria

We included randomized controlled trials (RCTs) that evaluated the effect of music on any type of pain in children or adults. We excluded trials that reported results of concurrent non-pharmacological therapies.

Data collection and analysis

Data was extracted by two independent review authors. We calculated the mean difference in pain intensity levels, percentage of patients with at least 50% pain relief, and opioid requirements. We converted opioid consumption to morphine equivalents. To explore heterogeneity, studies that evaluated adults, children, acute, chronic, malignant, labor, procedural, or experimental pain were evaluated separately, as well as those studies in which patients chose the type of music.

Main results

Fifty-one studies involving 1867 subjects exposed to music and 1796 controls met inclusion criteria.

In the 31 studies evaluating mean pain intensity there was a considerable variation in the effect of music, indicating statistical heterogeneity (I^2 = 85.3%). After grouping the studies according to the pain model, this heterogeneity remained, with the exception of the studies that evaluated acute postoperative pain. In this last group, patients exposed to music had pain intensity that was 0.5 units lower

[Intervention Review]

Intravenous lidocaine for the treatment of background or procedural burn pain

Jason Wasiak[1], Patrick Mahar[2,3], Siobhan K McGuinness[4], Anneliese Spinks[5], Stefan Danilla[6], Heather Cleland[7]

[1]Victorian Adult Burns Service and School of Public Health and Preventative Medicine, Monash University, The Alfred Hospital, Melbourne, Australia. [2]School of Medicine, Deakin University, Melbourne, Australia. [3]Skin and Cancer Foundation, Melbourne, Australia. [4]Intensive Care Unit, The Alfred Hospital, Melbourne, Australia. [5]School of Medicine, Griffith University, Meadowbrook, Australia. [6]Health Research and Development, Universidad de los Andes, Santiago, Chile. [7]Victorian Adult Burns Service, The Alfred Hospital, Melbourne, Australia

Contact address: Jason Wasiak, Victorian Adult Burns Service and School of Public Health and Preventative Medicine, Monash University, The Alfred Hospital, Commercial Road, Prahran, Melbourne, Victoria, 3181, Australia. J.Wasiak@alfred.org.au. jwasiak1971@gmail.com.

Editorial group: Cochrane Pain, Palliative and Supportive Care Group.
Publication status and date: Edited (no change to conclusions), published in Issue 8, 2012.
Review content assessed as up-to-date: 2 April 2012.

Main results

This update identified one new randomised, double-blind, placebo-controlled, cross-over trial which included 45 participants and compared intravenous lidocaine against placebo as a means of pain relief in those with burns. Subjective pain ratings as measured by the verbal rating scale increased during procedures for both treatment arms, however, the increase was less for the lidocaine treatment arm. There were no significant clinical or statistical differences regarding the effects of lidocaine and placebo on opioid requests and consumption, anxiety or level of satisfaction during a wound care procedure.

Authors' conclusions

As current clinical evidence is based on only one single RCT as well as case series and reports, intravenous lidocaine must be considered a pharmacological agent under investigation in burns care, the effectiveness of which is yet to be determined with further well-designed and conducted clinical trials.

Hydromorphone for acute and chronic pain

Columba Quigley[1]

[1]Cochrane Pain, Palliative & Supportive Care Review Group, Pain Research Unit, Oxford, UK

Contact address: Columba Quigley, Cochrane Pain, Palliative & Supportive Care Review Group, Pain Research Unit, The Churchill Hospital, Headington, Oxford, Oxfordshire, OX3 7LJ, UK. columba.quigley@btinternet.com.

Editorial group: Cochrane Pain, Palliative and Supportive Care Group.
Publication status and date: Edited (no change to conclusions), published in Issue 1, 2009.
Review content assessed as up-to-date: 15 August 2007.

Citation: Quigley C. Hydromorphone for acute and chronic pain. *Cochrane Database of Systematic Reviews* 2002, Issue 1. Art. No.: CD003447. DOI: 10.1002/14651858.CD003447.

Main results

Five further trials were added to the original review. The original review reported forty three studies (2725 participants). This review now reports forty eight studies (3510 participants). Approximately half of these studies received a low quality score. In addition, the heterogeneity of the studies precluded a meta-analysis. Of the 48 included studies, 12 (989 participants) involved chronic and 36 (2521 participants) acute pain conditions. Five studies were placebo-controlled. Of the remainder, hydromorphone was compared with other opioids, bupivicaine and with itself, using different formulations. The routes of administration included intravenous, oral, spinal, intramuscular and subcutaneous. Overall, hydromorphone appears to be a potent analgesic. The current limited evidence available suggests that there is little difference between morphine and hydromorphone in terms of analgesic efficacy, adverse effect profile and patient preference. However, as most studies involved small numbers of patients, it is difficult to determine real differences between both drugs. In the context of both acute and chronic pain, the issue of equi-analgesic ratios between morphine and hydromorphone was not resolved.

Intracutaneous or subcutaneous sterile water injection compared with blinded controls for pain management in labour

Sheena Derry[1], Sebastian Straube[2], R Andrew Moore[1], Heather Hancock[3], Sally L Collins[4]

[1]Pain Research and Nuffield Department of Clinical Neurosciences, University of Oxford, Oxford, UK. [2]Department of Occupational, Social and Environmental Medicine, University Medical Center Göttingen, Göttingen, Germany. [3]School of Nursing, University of Adelaide, Adelaide, Australia. [4]Nuffield Department of Obstetrics and Gynaecology, University of Oxford, Oxford, UK

Contact address: Sheena Derry, Pain Research and Nuffield Department of Clinical Neurosciences, University of Oxford, Pain Research Unit, Churchill Hospital, Oxford, Oxfordshire, OX3 7LE, UK. sheena.derry@ndcn.ox.ac.uk.

Editorial group: Cochrane Pregnancy and Childbirth Group.
Publication status and date: Edited (no change to conclusions), comment added to review, published in Issue 9, 2012.
Review content assessed as up-to-date: 13 October 2011.

Main results

We included seven studies, with 766 participants: four used intracutaneous injections, two subcutaneous, and one both. All reported on low back pain in labour only. Methodological quality was good, but four studies were at high risk of bias due to small size of treatment groups, incomplete outcome data, and performance bias.

All studies reported treatment group mean or median scores, finding greater reduction in pain for sterile water. However, failure to demonstrate a normal distribution for pain intensity or relief, and use of different scales, meant meta-analysis was inappropriate. No study reported primary dichotomous efficacy outcomes. One reported the number self-scoring 4/10 cm or more reduction in pain; significantly more had this outcome with sterile water (50% to 60%) than with placebo (20% to 25%).

There was no significant difference between sterile water and saline for rates of caesarean section (risk ratio (RR) 0.58, 95% confidence interval (CI) 0.33 to 1.02), instrumental delivery (RR 1.31, 95% CI 0.79 to 2.18), rescue analgesia (RR 0.86, 95% CI 0.44 to 1.69), timing of delivery, or Apgar scores. Two studies reported that more women treated with sterile water would request the same analgesia in future.

No study reported on women's satisfaction with pain relief, women's sense of control in labour, women's satisfaction with the childbirth experience, mother/baby interaction, rates of breastfeeding, maternal morbidity, infant long-term outcomes, or cost. No adverse events were reported other than transient pain with injection, which was worse with sterile water.

Authors' conclusions

The outcomes reported severely limit conclusions for clinical practice. We found little robust evidence that sterile water is effective for low back or any other labour pain. Neither did we find any difference in delivery or other maternal or fetal outcomes. Further large, methodologically rigorous studies are required to determine the efficacy of sterile water to relieve pain in labour.

Acupunture or acupressure for relieving pain in labour

Smith CA, Collins CT, Crowther CA, Levett KM
Published Online:
August 10, 2011

- Acupuncture involves the insertion of fine needles into different parts of the body to correct the imbalance of energy in the body.

- **The review of 13 trials, with data reporting on 1986 women, found that acupuncture or acupressure may help relieve labour pain.**
- **Single or limited numbers of trials reported less intense pain (reduced pain intensity), and reduced use of analgesic drugs with acupuncture compared with placebo or usual care.**

Capsaicin applied to the skin for chronic neuropathic pain in adults

Derry S, Lloyd R, Moore RA, McQuay HJ
Published Online:
October 7, 2009

- Topical (rubbed on the skin) capsaicin may provide some pain relief in various neuropathic pain conditions,.

- **Capsaicin, either alone or in combination with other treatment, may provide useful pain relief in individuals who can not tolerate, other available therapies.**

Adjusting the pH of lidocaine solution for reducing pain on injection

Cepeda MS, Tzortzopoulou A, Thackrey M, Hudcova J, Arora Gandhi P, Schumann R
Published Online:
December 8, 2010

- Lidocaine is frequently used to anaesthetize the skin prior to invasive procedures. Its administration produces pain that is thought to be due to the acidic pH of commercial preparations (pH levels between 3.5 and 7.0 compared with the physiologic pH which is between 7.35 and 7.45).
- The objective of this review was to determine the effect of increasing the pH of a commercial lidocaine preparation on pain associated with its injection in adults and children.
- **We included 23 studies with 1067 participants in the meta-analysis. Increasing the pH of lidocaine reduced pain and improved patients' comfort and satisfaction. No adverse events were reported.**
- **Therefore, increasing the pH of commercial lidocaine solutions with bicarbonate immediately prior to their use should be considered.**

Lamotrigine (an antiepileptic drug) for acute and chronic pain

Wiffen PJ, Derry S, Moore RA
Published Online:
February 16, 2011

- Some antiepileptic medications can help neuropathic pain. Antiepileptic drugs such as pregabalin, gabapentin, and carbamazepine have been shown to be of value in neuropathic pain.

- **The aim of this review was to assess how effective lamotrigine is for neuropathic or other chronic pain, or acute pain. The review identified 12 included studies which included a total of 1511 participants.**

- **Studies were only available for neuropathic pain, with no evidence that lamotrigine was effective in this type of pain.**

Phenytoin for neuropathic pain and fibromyalgia in adults

Birse F, Derry S, Moore RA
Published Online:
May 16, 2012

- The aim of this review was to assess how effective phenytoin is for neuropathic pain and fibromyalgia. We identified no good quality studies of phenytoin used in this situation.

- Based on current evidence, phenytoin cannot be recommended for treating neuropathic pain.

Clonazepam for neuropathic pain and fibromyalgia in adults

Corrigan R, Derry S, Wiffen PJ, Moore RA
Published Online:
May 16, 2012

- **Clonazepam is an antiepileptic medication, and the aim of this review was to assess how effective clonazepam is for neuropathic pain and fibromyalgia.**
- **We identified no good quality studies of clonazepam used in this situation.**
- **Based on current evidence, clonazepam cannot be recommended for treating neuropathic pain.**

Therapeutic ultrasound for chronic low-back pain

Ebadi S, Henschke N, Nakhostin Ansari N, Fallah E, van Tulder MW
Published Online:
June 15, 2011

- ***This Cochrane Review is at the protocol stage and there is no abstract or plain language summary. The objectives for the review are as follows:***
- The objective is to determine the effectiveness of therapeutic ultrasound in the management of chronic non-specific low-back pain.
- We will compare ultrasound (either alone or in combination with another treatment) to placebo, no treatment, or other interventions for chronic LBP. A secondary objective is to determine the most effective dosage and intensity of therapeutic ultrasound for chronic LBP.

Teşekkür Ederim…