

Ketamine

■ A 1994 study suggests Ketamine safe in Paramedic hands.

The screenshot shows a web browser window with a search results page. The browser's address bar shows a URL starting with 'http://'. The search results bar at the top indicates 'All: 1' and 'Review: 0'. Below this, a search result is listed for '1: Ned Tijdschr Geneeskd. 1994 Nov 12;138(46):2301-4.' with a 'Links' button to its right. The article title is '[Analgetic ketamine feasible in ambulance emergency care]' and it is noted as '[Article in Dutch]'. The authors are listed as 'Ansem RP, Hartman JA, Foudraïne JE, van Loenen E, Rutten FL.' and the institution is 'Academisch Ziekenhuis Rotterdam-Dijkzigt, afd. Spoedeisende Hulp.' The abstract text describes a prospective study at the University Hospital of Rotterdam 'Dijkzigt' involving 138 patients (51 women and 87 men) aged 9-95 years. It details the use of a low dose of ketamine for pain relief during transport to the hospital, reporting that 125 (90.5%) of the 138 patients had a relief of their pain. Side-effects were mostly of psychic origin, including agitation (9%), disorientation (17%), sedation (27%), and hallucinations (5%). The conclusion states that a low dose of ketamine seems safe and feasible for ambulance trauma care. The PMID is 7969624, indexed for MEDLINE. On the right side, there is a 'Related Articles' section with five links to other studies on ketamine sedation. At the bottom, there is a control bar with 'Display' set to 'AbstractPlus', 'Show' set to '20', and 'Sort By' and 'Send to' dropdown menus. A 'Write to the Help Desk' link is at the very bottom.

All: 1 Review: 0

1: [Ned Tijdschr Geneeskd](#). 1994 Nov 12;138(46):2301-4. Links

[Analgetic ketamine feasible in ambulance emergency care]

[Article in Dutch]

[Ansem RP](#), [Hartman JA](#), [Foudraïne JE](#), [van Loenen E](#), [Rutten FL](#).

Academisch Ziekenhuis Rotterdam-Dijkzigt, afd. Spoedeisende Hulp.

OBJECTIVE. To investigate if ketamine could be a feasible analgetic in ambulance trauma care. **DESIGN.** Prospective. **SETTING.** University Hospital of Rotterdam 'Dijkzigt'. **METHODS.** To 51 women and 87 men in the age of 9-95 years who suffered from pain due to trauma and needed pain relief during transport to the hospital, a low dose of ketamine was given according to protocol. Their pain was measured with a descriptive verbal pain scale every 5 minutes. **RESULTS.** Upon arrival in the hospital 125 (90.5%) out of the 138 patients had a relief of their pain. For 101 patients the pain was only minimal or had disappeared during transport. This was reached in 74 cases with only one dose of ketamine, in 26 cases a second dose was needed, a same number needed nitrous oxide in addition and 9 times a second dose and nitrous oxide was given. Side-effects were mostly of psychic origin, such as agitation (9%), disorientation (17%), sedation (27%), and hallucinations (5%). They never lasted longer than several minutes or hindered further investigation. **CONCLUSION.** A low dose ketamine seems a safe and feasible analgetic in ambulance trauma care. Further research which compares ketamine with other in the ambulance trauma care current analgetics seems of value.

PMID: 7969624 [PubMed - indexed for MEDLINE]

Related Articles

- Ketamine sedation for the reduction of children's fractures in the emerge [J Bone Joint Surg Am. 2000]
- A randomized comparison of nitrous oxide plus hematoma block versus ketamine [Pediatrics. 2006]
- Incidence and severity of recovery agitation after ketamine sedation in young [Am J Emerg Med. 2005]
- Why are people without medical needs transported by ambulance? A study of indi [Eur J Emerg Med. 2007]
- Safety of mixture of morphine with ketamine for postoperative patient [Acta Anaesthesiol Scand. 2005]

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■ Australian experience.

- Withdrawn after a patient death from the Western Australia Ambulance service.
- Reinstated after coroner's inquest.
- Also now used by Queensland Ambulance Service.

■ St John procedure.

Ketamine

- Indicated in severe pain, particularly musculoskeletal or burn pain. Is preferably used in combination with morphine.
- Contraindicated if:
 - a. Age less than one year **or**
 - b. Unable to obey commands **or**
 - c. Has active psychosis **or**
 - d. Has cardiac chest pain **or**
 - e. Midazolam has already been given.
- Give oxygen via nasal prongs or acute (ordinary) mask.
- Continually monitor airway, breathing and consciousness. Continually monitor pulseoximetry if practical.
- In adults:
 - a. If morphine or IM ketamine already given, give 10 mg ketamine IV and give further doses of 5 mg IV every 3-5 min.
 - b. If morphine or IM ketamine has not been given, give 20 mg ketamine IV and give further doses of 10 mg IV every 3-5 min.
 - c. If unable to gain IV access, give 1 mg/kg ketamine (rounded off to nearest 10 kg) IM or oral, up to a maximum of 100 mg. This may be repeated after 20 minutes if required. Do not use IM route if shocked and avoid IM use in children if possible. Oral ketamine may be given in paracetamol syrup, water or juice.
 - d. Reduce the dose if the patient is elderly, small or physiologically unstable.
- For children, see paediatric drug dose table.



■ Case Study 1

- Male aged 19 years.
- Driver of car v motorway barrier.
- Ejected from car.
- Fractures to both femurs.

■ Physiology.

- Awake with full memory of events prior.
- HR. 76
- BP. 100/50
- RR. 22
- Significant pain to both legs.

■ Pain relief used

- Entonox and Ketamine 20mg, followed by two further doses of 10mg IV.
- Excellent result enabling realignment of legs and extrication to Ambulance.
- No hallucinations experienced.

■ Case Study 2

- Male aged 41 years.
- Fall from a tree approximately 6 metres.
- Fell onto outstretched hands.
- Bilateral colles fractures.

■ Physiology.

- Awake with full memory of events prior.
 - HR. 72 (ED obs)
 - BP. 140/? (ED obs)
 - RR. Not recorded
-
- Significant pain to both arms. Unable to move patient due to pain.

■ Pain relief used

- Entonox and IV Morphine 20mg total with little effect.
- "C" Collar
- Ketamine IV total of 20mg (10mg, 5mg, 5mg)
- Excellent result enabling us to roll to supine and use a scoop stretcher.
- The patient hated the Ketamine and requested no more. "Don't give me any more of that dream stuff"
- Remained uncomfortable despite further Morphine.

■ Ketamine

- First used as an anaesthetic agent in the Vietnam War.
- Later discovered to be beneficial in low dosages as an analgesic with a low incidence of hallucinations.
- Also commonly used for recreational purposes.

■ Ketamine

- NMDA (N-methyl-D-aspartic acid) antagonist.
- In high doses produces dissociative anaesthesia.
- Ketamine also binds to both opioid mu and sigma receptors.

■ St John.

- Indicated for severe pain. Particularly burn or musculoskeletal pain.

- Best used in addition to morphine.
- Common effects:
 - Profound analgesia.
 - Relative preservation of breathing and circulation, often with a small rise in HR and BP, sometimes temporary apnoea.
 - Involuntary movements and a trance like state.
 - Salivation, mouth movements, sucking.
 - Hallucinations.

■ Ambulance pain relief Hx.

- Only Entonox (Nitrous oxide) until 1985.
- Introduction of Pentazocine (Fortral).
- Early 1990's Introduction of Morphine with conservative doses.
- Some DHB services also used Nubain.

- Morphine with low dose Midazolam introduced in 2001.
- Ketamine introduced into St John Advanced Paramedic procedures in 2007.



- Westpac rescue advanced paramedics first used Ketamine in 2005.



■ Ketamine is controversial?

- There is a range of views...
- Some believe that Ketamine should not be used outside of anaesthetic hands.
- Others believe that it should remain in the hands of Doctors.