

Ketofol for changes of dressings in Burns ICU

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Aim – To assess the suitability of the drug Ketofol (ketamine + propofol combination) in adult burns patients

Introduction

Burn wounds are painful and stressful for patients, particularly whilst their dressings are being changed and undergoing other aspects of wound care¹.

Management of these injuries can cause significant pain in burn patients, requiring these patients to undergo regular general anaesthesia for dressing change².

Ketofol has been discussed in the literature since around 2003. Ketamine and propofol appear to counter each other’s adverse effects, conferring several advantages including reduction in individual agent dose, haemodynamic stability^{3,4}, and also provide the analgesic element required during a burns dressing change.

Methods

- In our case series, ketofol is constituted as a 1:1 mixture of ketamine 200mg (50mg/mL) and propofol 200mg (10mg/mL) to a total volume of 24mL.
- This results in a propofol and ketamine concentration of approximately 8 mg/ml.
- All patients were appropriately starved before change of dressings and had full AAGBI monitoring throughout.
- A registered staff nurse is also present with the patient throughout and post dressing change.

Results

- We present three burn injury patients in whom Ketofol was given as multiple boluses over periods of up to 90 minutes, for a shower and change of dressing post burn injury.
- These are 3 cases from numerous conducted in Morrison Hospital in this way.
- A protocol has been developed which includes a premedication with 20mg diazepam and 20mg oxycodone, but this is, at present, modified with consultant preference

Cases

Case 1

A 46-year-old man presented to A&E with 61.5% TBSA burns to face, chest and 4 limbs, following butane inhalation.

He underwent 2 further general anaesthetics for burn assessment, excision and grafting, after which dressing changes were performed in his ICU cubicle under Ketofol.

He was given 20mg Oxycodone and 20mg Diazepam premedication 30 minutes before each change of dressing. He recovered well post procedure, with no adverse events recorded.

| Change | Dose (ml) |
|--------|-----------|
| 1 | 28 |
| 2 | 18 |
| 3 | 17 |
| 4 | 13 + 11 |
| 5 | 10 + 6 |
| 6 | 10 + 6 |

Cases

Case 2

A 55-year-old farmer presented to his local A&E with 52% TBSA scald following a hot water tank burst. He was exposed to 80-degree Celsius water for approximately 2 minutes, following which he self-immersed in a water trough. He had a total of 2 dressing changes using Ketofol. He recovered well post-procedure, with no adverse events noted or recorded in his patient notes

Case 3

A 42-year-old man presented to A&E with 9% burns, mixed full and partial thickness, to both his lower arms, hands and his face following a flame injury whilst working on the underside of a truck. He recovered rapidly post-procedure and reported a positive experience.

Conclusion

- These three cases demonstrated that ketofol, when given as incremental boluses, is a safe and effective combination for a change of dressing in adult burns patients, with a high or low TBSA percentage burn.
- Advantages of this technique included analgesia, airway preservation, maintenance of spontaneous respiration, haemodynamic stability and rapid recovery. In addition, it can be easily titrated to effect, and can be given for long changes, as shown up to 90 minutes in our case.
- It reduces the total propofol dose required for a painful dressing change, by adding in the analgesic effects provided by ketamine.

| Effect | Ketamine | Propofol |
|------------------------|----------|----------|
| Hypnosis | + | + |
| Nausea and vomiting | + | - |
| Analgesia | + | - |
| Cardiovascular (BP/HR) | + | - |
| Salivation | + | - |
| Neuromuscular | + | - |
| Psychocognitive | + | - |

Recommendations

- There is a lack of evidence and research surrounding the use of ketofol as an analgesic and sedation agent in adult burn patients, however we have found it to be extremely effective in our centre.
- We believe this combination is ideal for burns dressing changes, but further large scale studies are required.
- This combination has been used in ICU, but also in theatre for change of dressings in “non-ICU” patients.
- Another benefit of using of ketofol is that it has allowed these patients to undergo a particularly distressing and painful aspect of care without the use of a general anaesthetic and its associated side effects and risks.
- It can also be cost effective as theatre spaces are kept free and less theatre personnel are required.

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