

## **ORIGINAL ARTICLE**

# **Efficacy and patient acceptability of analgesia by intranasal diamorphine in burns patients: results of a pilot project**

Muhammad Adil Abbas Khan\*, Thomas Reekie\*\*, R Breakey\*\*\*, Mark Gorman\*\*, Mritunjay Kumar Varma\*\*\*\*, Simon Law\*\*\*\*

\*Specialist Registrar, \*\*Core Trainee, \*\*\*House Officer Department of Plastic, Reconstructive & Burns Surgery

\*\*\*\*Consultant Anaesthetist, University Hospital of North Durham, Durham, United Kingdom DH1 5TW

**Correspondence:** Dr. Muhammad Adil Abbas Khan, 10 Harvey Lodge, Admiral Walk, London W9 3TH (UK);  
Mobile: 07863332517; E-mail: adilaku@hotmail.com

## **ABSTRACT**

**Objective:** To objectively assess intranasal diamorphine as an analgesic adjuvant for change of dressings in burn patients.

**Methodology:** Eleven patients were recruited at a regional burns centre for this pilot study. Intranasal diamorphine at a weight-calculated dose was administered through an atomizer and patient vital signs and APVU scores were documented pre and post administration. A post-procedural satisfaction questionnaire was also completed by all patients.

**Results:** Eleven patients (8 males and 3 females) were recruited for this pilot project. Mean age was 34 years (19-57 years) and mean burn total body surface area (TBSA) was 8.9% (4-17%). Procedure duration was a mean of 53.0 minutes (30-72 minutes). Six of the patients had a past history of opiate use. The data of our small-scale study shows that it has good analgesic efficacy, rapid-onset, safety and high degree of patient satisfaction without the need for intravenous access. There were no side-effects and all patients expressed satisfaction with the analgesia given.

**Conclusion:** Intranasal diamorphine provides effective analgesia for moderate to severe procedural pain and can be a safe analgesic adjuvant for change of dressings in burn patients.

**Key words:** Intranasal diamorphine; Total body surface area; Burn; Burn Unit; Analgesia

**Citation:** Khan MAA, Reekie TA, Breakey R, Gorman M, Varma MK, Law S. Efficacy and patient acceptability of analgesia by intranasal diamorphine in burns patients: results of a pilot project. *Anaesth Pain & Intensive Care* 2013;17(2):128-130

## **INTRODUCTION**

Intranasal diamorphine is an easily administered, fast-acting analgesic for the relief of moderate to severe pain and can provide rapid analgesia for procedural and background pain in adult burns patients undergoing a potentially painful dressing change. It is particularly useful in patients who have no cannula in-situ or in whom alternative analgesia is not suitable or inadequate.

## **METHODOLOGY**

Eleven patients were recruited for this pilot project at a regional burns centre. The patients were weighed in kilograms and patient demographics (shown in Table 1) were recorded. The intranasal dose of diamorphine was calculated at 0.1 mg/kg with all patients receiving 0.2 ml of the diluted solution regardless of age/size. If a top up was required, a further 0.05 mg/kg was given after 15

minutes. This was then given intranasally to the patient through an atomizer in a 1ml syringe who was asked to sniff. Respiratory and heart rate, oxygen saturation and AVPU were documented pre and post administration.

After the procedure, patients were asked by medical staff to complete a questionnaire regarding their experiences of the treatment.

## **RESULTS**

The protocol was piloted on a total of 11 patients (8 males and 3 females). The average age was 34 years (19 – 57 years) and the average weight was 64.8 kg (54 – 111 kg). The average burn percentage was 8.9% TBA (range 4 – 17 %). The treatment undertaken was a change of dressing and shower in 10 patients and Biobrane application in 1 patient. The treatments in this out-patient cohort were undertaken at an average of 4.2 days post burn (range 0

– 11 days) and consistent responses in the early and late groups show that the analgesia works equally well in the early as well as the late burn dressing.

The average duration of the procedure in minutes was 53.0 minutes (range 30 – 72 min).

Six patients underwent our protocol at recurrent periodic intervals and all six of these patients had a history of long term opiate abuse. The response of each patient improved with each successive procedure showing that the patient warmed up to the procedure. Top up was required in just 1 patient (the 5<sup>th</sup> change of dressing in the patient who underwent a total of 6 changes of dressings which needed 72 minutes).

There were no cases of opiate toxicity or any other untoward side effects in any of the patients. The results are summarised in Tables 1.

**Table 1: Patient demographics**

Parameter	Average	Range
Age	34 years	19 – 57 years
Sex	8 M : 3 F	
Weight	64.8 kg	54 – 111 kg
Burn surface area	8.9 % TBA	4 – 17 %
Long term opiate history	6 patients	
Treatment		
- COD + S	10	
- BA	1	
Days after initial burn when treatment was undertaken	4.2 days	0 – 11 days
Average duration of procedure	53.0 minutes	30 – 72 minutes
Top up required	1 patient	
Recurrent treatments	6 patients	2 – 6

COD + S = Change of Dressing & shower, BA = Biobrane application

Ten of the eleven patients expressed ‘complete’ satisfaction with the analgesia and felt the pain was better alleviated than they had expected. One described a ‘good’ level of satisfaction. All patients also felt that the spray worked rapidly and was easy to use. Four patients felt the administration of the spray was uncomfortable and three patients disliked the taste. However all patients were happy to use the spray analgesic at a similar subsequent treatment. The results are summarised in Table 2.

## DISCUSSION

Intranasal diamorphine is a well tolerated, safe and effective form of analgesia.<sup>1-3</sup> To our knowledge this is the first

**Table 2: Outcome of patient satisfaction survey**

Question	N
1. How would you describe your satisfaction with your analgesia?	
- Complete	10
- Good	1
- Moderate	0
- Slight	0
- None	0
2. How did your pain compare with what you expected (patient) to normal (nurse)?	
- Better	11
- As expected / Normal	0
- Worse	0
3. Did the spray work rapidly enough?	
- Yes	11
- No	0
4. Was the spray easy to use?	
- Yes	11
- No	0
5. Was the spray uncomfortable?	
- Yes	4
- No	11
6. Did the spray taste unpleasant?	
- Yes	3
- No	11
7. Would you be happy (for the patient) to use the spray again?	
- Yes	11
- No	0

time that it has been used in a cohort of burns patients for dressings change analgesia. It has resulted in a high degree of patient satisfaction though small drawbacks like discomfort with the spray administration or an unpleasant taste were reported by a minority of patients. However, all patients were happy to use the spray analgesic at a similar subsequent treatment.

Currently intravenous cannulae in burns patients are often purely kept to give analgesia for dressings changes during the rehabilitation phase of a burn. To help prevent line site infection, infection control guidelines state that the intravenous cannulae should be changed every three days, resulting in significant discomfort for some patients. Intravenous cannula insertion can also be particularly challenging in patients with a history of intravenous drug abuse and leaving cannulae in situ in this patient cohort is not recommended necessitating the need for repeated cannulation at every change of dressing. Intranasal diamorphine avoids this necessity, whilst still providing an adequate level of analgesia when required for procedural pain.

## CONCLUSION

This small scale study suggests that intranasal diamorphine

## intranasal diamorphine in burns patients

can be considered as a well tolerated, safe and effective analgesic adjuvant when managing procedural pain in a burns patient. Prospective studies with a larger number of

patients can further substantiate the findings of our pilot project.

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