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Evaluating The Effectiveness Of Ketamine In Reducing Procedural Anxiety And Pain During Minor Surgical Procedures In A Community Setting.

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Abstract

Objective: This study investigates the use of low-dose intramuscular ketamine as a safe and effective alternative for managing procedural anxiety and pain in minor surgical interventions in a community health setup. **Methods:** A randomized, controlled trial was conducted on 60 patients. Pain and anxiety levels were assessed pre- and post-procedure using the Visual Analog Scale (VAS) and the State-Trait Anxiety Inventory (STAI). **Results:** The ketamine group reported a significant reduction in VAS scores (mean 2.1 ± 0.9 vs. 4.5 ± 1.2) and STAI scores (mean reduction of 8.5 points) compared to controls. Adverse effects were minimal and self-limiting. **Conclusion:** Ketamine at low doses is a practical option for reducing anxiety and pain during minor surgical procedures, enhancing access to safe anaesthesia in community settings.

Keywords: community settings, procedural anxiety, ketamine

Introduction

Access to safe and effective anaesthesia is limited in resource-constrained community settings, particularly for minor procedures. Many patients report significant anxiety and pain due to inadequate anaesthetic practices. Ketamine, a dissociative anaesthetic, has gained attention for its analgesic, anxiolytic, and amnesic properties at sub-anaesthetic doses. However, its utility in community settings for minor procedures remains underexplored. This study aims to evaluate the safety and effectiveness of low-dose ketamine in reducing procedural pain and anxiety in such contexts.

Materials and Methods

Study Design and Setting

This was a randomized, controlled trial conducted at a community health centre. Approval was obtained from the Institutional Ethics Committee, and informed consent was acquired from all participants.

Participants

Sixty adult patients requiring minor surgical interventions were enrolled. Patients with known contraindications to ketamine, severe comorbidities, or psychiatric illnesses were excluded. Participants were randomly divided into two groups:

- **Ketamine group (n=30):** Received 0.5 mg/kg intramuscular ketamine.
- **Control group (n=30):** Received standard local anaesthesia alone.

Outcome Measures

- **Pain Levels:** Assessed using the Visual Analog Scale (VAS).
- **Anxiety Levels:** Measured using the State-Trait Anxiety Inventory (STAI).
- **Adverse Effects:** Monitored and documented.

Procedure

Patients in the ketamine group received the intervention 15 minutes prior to the procedure. Pain and anxiety levels were recorded at baseline and immediately post-procedure.

Statistical Analysis

Data were analyzed using SPSS software. Independent t-tests were used for continuous variables, with a significance level set at $p < 0.05$.

Results

Demographics

The mean age of participants was 38.7 ± 12.5 years, with a nearly equal gender distribution. No significant differences in baseline demographics were observed between groups.

Variable	Ketamine Group (n=30)	Control Group (n=30)	p-value
Mean Age (years)	39.1 ± 11.8	38.3 ± 12.1	0.72
Male (%)	53%	50%	0.85

Pain and Anxiety Reduction

The ketamine group showed a significant reduction in VAS and STAI scores compared to controls.

Measure	Ketamine Group	Control Group	p-value
VAS (mean)	2.1 ± 0.9	4.5 ± 1.2	<0.001
STAI (mean)	8.5 ± 2.3 (reduction)	2.3 ± 1.1 (reduction)	<0.001

Adverse Effects
Minimal adverse effects were reported in the ketamine group, including dizziness (10%) and nausea (6.7%), all resolving spontaneously.

Discussion
This study demonstrates that low-dose ketamine significantly reduces procedural pain and anxiety compared to standard care. Its ease of administration, rapid onset, and minimal side effects make it ideal for resource-limited community settings. These findings align with prior research indicating ketamine's efficacy in similar contexts.

The primary limitation of this study is its relatively small sample size and single-site design. Future multicenter studies with larger cohorts are warranted.

Conclusion
Low-dose ketamine is a viable option for alleviating procedural pain and anxiety in community settings, enabling safer and more comfortable minor surgical interventions.

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