Subjective Changes in Mood and Chronic Pain Status-post Intravenous Ketamine for Oral and Facial Surgery

Queen Ralph, Christopher Paolino DMD,
Daniel J. Meara, MS, MD, DMD, MHCDS, FACS
Christiana Care Health System, Wilmington, DE

INTRODUCTION

- Intravenous sedation (IVS) in Oral and Maxillofacial Surgery (OMFS) allows for optimal conditions for patients to undergo procedures.
- **Ketamine**, an increasingly popular medication used in sedation, is a **dissociative amnestic** that dissociates the thalamus from the limbic system causing both sedation and analgesia.
- In **recent studies, Ketamine has improved chronic pain and improved mood**.
- **Purpose:** Determine whether subjects who received IV Ketamine for outpatient procedures, under IVS, show **changes in mood and chronic pain**.

MATERIALS & METHODS

- Inclusion Criteria: OMFS patients >18y/o eligible for intravenous sedation with chronic pain and/or depression.
- Exclusion criteria: <18y/o patients.
- Eligible subjects were educated about the purpose and potential risks and benefits of the study; consent was obtained if they chose to participate.
- Chronic pain was surveyed pre- and post-operatively
- Beck's Depression Inventory (Modified) - surveyed patient's mood postoperatively.
- Data was reviewed to determine correlation between intravenous sedation with Ketamine and effects on chronic pain and mood.

RESULTS

Table 1: Patient Demographics

Age	N (%)
18-20	0 (0%)
21-30	5 (26%)
31-40	12 (44%)
41-50	4 (16%)
51-over	2 (12%)

Age, Mean (SD)	36 (10.4)
Sex	
Female, N (%)	10 (43%)
Male, N (%)	13(57%)

Table 2: Reported **Chronic Pain** location pre/post-operatively

Location of Pain	Pre-Op (N%)	Post-Op(N%)
Head/ face, N (%)	23%	52%
Neck, N (%)	6%	6%
Shoulder, N (%)	6%	6%
Back, N (%)	35%	12%
Arm/Leg/Hand/Foot, N (%)	18%	12%
Other, N (%)	12%	12%
Severity of Pain, Mean (SD)	**3.0 (3.3)**	**2.6 (2.9)**

Figure 1: Total reports of **Chronic Pain** in study population.

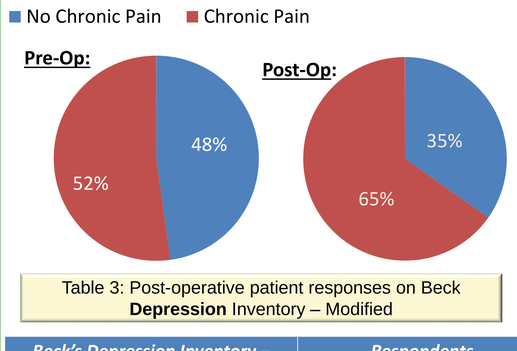


Figure 2: **Chronic Pain** Score in recipients of IV Ketamine vs. Non-recipients

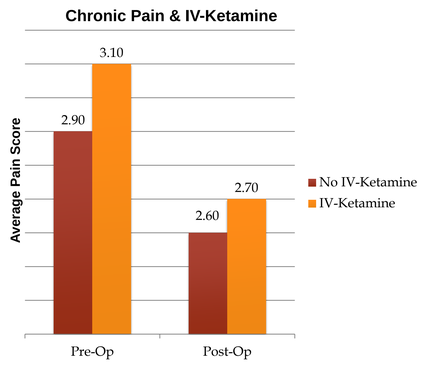
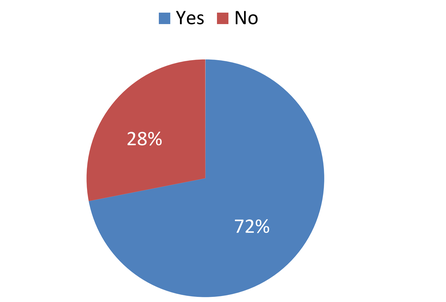


Table 3: Post-operative patient responses on Beck **Depression** Inventory – Modified

Beck's Depression Inventory – Modified Questionnaire	*Respondents*	
	IV-Ketamine	*No IV-Ketamine*
Q1. Happier, Yes (%)	56%	32%
Q2. More encouraged, Yes(%)	44%	32%
Q3. More satisfaction, Yes (%)	38%	32%
Q4. More pride, Yes (%)	38%	27%
Q5. Increased self-worth, Yes(%)	38%	27%
Q6. Don't cry as much, Yes (%)	19%	23%
Q7. Less irritated, Yes (%)	38%	18%
Q8. More interest in people, Yes(%)	19%	23%
Q9. Make better decisions, Yes(%)	25%	18%
Q10. Feel that I look better, Yes (%)	25%	18%
Q11. Work better, Yes(%)	38%	23%
Q12. Sleep better, Yes(%)	44%	23%
Q13. More energy, Yes(%)	31%	23%
Q14: Better appetite, Yes(%)	38%	18%

Figure 3: Patient opioid use post-operatively



CONCLUSIONS

- Ketamine appears to have **value to patients beyond just its anesthetic properties**.
- **Chronic pain and mood appear to be positively altered** by the use of Ketamine in outpatient surgical procedures.
- Ketamine use **should be considered as a first-line anesthetic agent**, unless contraindicated, in patients with chronic pain and depression.
- The **growing opioid and mental health epidemic** may allow Ketamine a **secondary impact**.

LIMITATIONS

- **Sample size:** sample was relatively small due to:
  - time constraint (June 4- August 3, 2018)
  - the number of ineligible subjects
- **Language Barrier:** Spanish-speaking patient population did not seem to fully understand study.
- **Post-op Appointment Neglect:** a small amount of the subject population failed to present for post –op visit and/or missed follow-up phone calls.
- **Time of Post-Op Consult:** Post-operative chronic pain was measured at different time intervals.
- **Depression Assessment:** no pre-op baseline was obtained.
- **Sustained Benefit:** time constraints limited long-term follow-up.

FUTURE DIRECTIONS

- Continue study to increase study population, data collection, and duration of follow-up to assess validity of conclusions.
- Evaluate Ketamine's effectiveness versus other anesthetic agents.
- Determine optimal Ketamine dosing regimens when aiding patients suffering with depression and/or chronic pain.
- Collaborate with Behavioral Health services to further assess relationship between Ketamine and mood.
- **Study the relationship between Ketamine and post-operative oral pain medication utilization.**

ACKNOWLEDGEMENTS

- This poster was supported by the Delaware INBRE program, with a grant from the National Institute of General Medical Sciences- NIGMS(8 P20 GM10344616) from the National Institutes of Health and the State of Delaware.
- Thank you to the entire staff of the Oral and Maxillofacial Surgery and General Practice Dentistry Residency Programs!
- Thank you to Kimberly D. Williams, MPH, from the Christiana Care Value Institute.