



Do anti-psychotic medications improve oral sedation outcomes in ASD patients?



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Introduction

Oral conscious sedation (OCS) is an advanced behavior guidance technique that is commonly used in pediatric dentistry.

Medications, Demerol and Hydroxyzine, are effective, safe and commonly used sedative agents in the dental setting to achieve moderate sedation. Sedation of children with autism spectrum disorder (ASD) can be challenging and unpredictable. When OCS visits fail, treatment is delayed, resources and time of the family and the provider are wasted, and there is a potential increase in dental fear and anxiety for the child. It is in the best interest of all involved for the provider to determine the best behavior management approach for their patients to reliably complete treatment and maximize sedation success.

No medications can cure ASD, but there are two drugs approved by the U.S. Food and Drug Administration (FDA), Aripiprazole and Risperidone, for behavior management. These anti-psychotics help manage irritability, aggression, mood swings, and self-injury. The practice of pediatric dentistry involves behavior management, social interactions, cooperation from the patient and a formation of trust. Building this foundation with an ASD patient may be impractical based on the severity of their affliction.

At Children's Medical Center (CMC) dental clinic, approximately 2 patients are scheduled for an OCS treatment daily. Anecdotally, OCS has not appeared to be reliably effective for facilitating dental treatment in the ASD population. However, ASD children on FDA approved anti-psychotic medications appeared to have better behavior allowing for a higher chance of dental treatment success during OCS visits. This subjective observation lacks statistically significant evidence.

Purpose

The purpose of this study was to determine if the use of anti-psychotic medications have a positive effect on oral conscious sedation outcomes in patients diagnosed with ASD

Inclusion Criteria

- 1. Medical diagnosis of ASD
- 2. Fall within the ages of 5 to 9 years old
- 3. Patients who are prescribed no medication, Aripiprazole or Risperidone
- 4. First oral sedation appointment at CMC dental clinic
- 5. Oral sedation medications used were Demerol and Hydroxyzine
- 6. Use of Nitrous oxide during treatment in conjunction with the oral sedation medications
- 7. Brodsky score of 2 or less
- 8. ASA score of 2

Methods

A retrospective chart review was conducted on patients with ASD who received dental treatment with oral conscious sedation. A report in Epic Systems identified all patients who received in-office moderate sedation by the ADA billing code (9248) at CMC dental clinic from years 2021 through 2023. Each chart was reviewed for inclusion and exclusion criteria. At the end of the visit, behavior was rated on the Frankl behavior rating scale from F1 to F4 in the clinician’s note. F1 being definitely negative with F4 being definitely positive. The OCS visit was considered a failure if the patient’s behavior was reported negative by an F1 or F2 score and no treatment could be completed. The sedation was considered a success if the patient’s behavior was positive with an F3 or F4 score and dental treatment was accomplished.

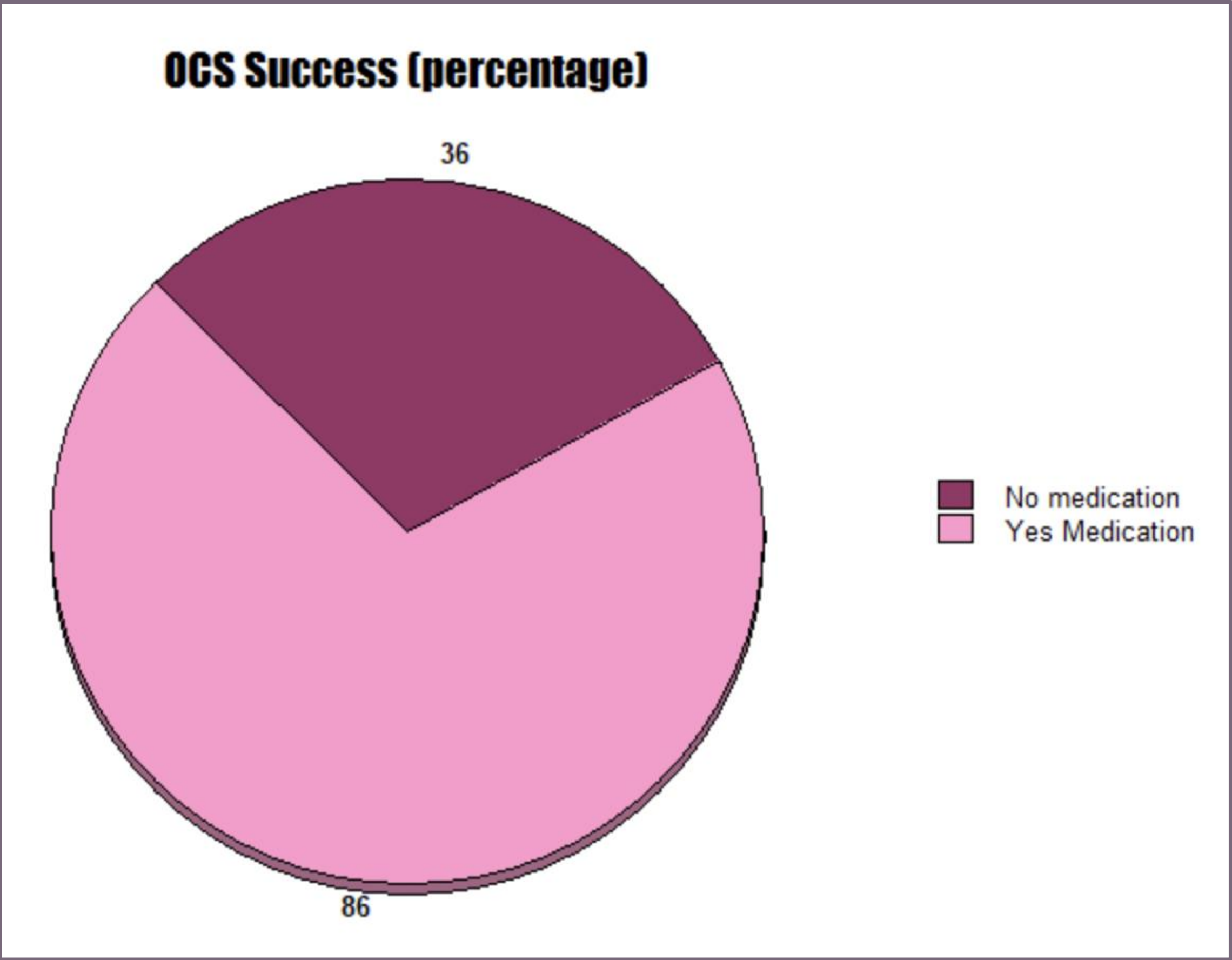
Results

49 patients ranging from 5 to 9 years old who presented for their first OCS appointment met the inclusion criteria. Data was collected between Feb 2021 to Oct 2023. All sedations were completed by a CMC pediatric dental resident. Demerol and Hydroxyzine medications were measured according to patients body weight on the day of treatment with a maximum dose of 50mg for Demerol and 25mg for Hydroxyzine. The contingency table below summarizes the data obtained. A fishers exact test was run with a two tailed p value = 0.033 which shows significance of the observed data set.

OCS	Success	Failure
No medication	15	27
Yes medication	6	1

* P of these exact numbers is 0.033

P<0.05



ASD patients not on an FDA approved anti-psychotic medication showed a success rate of 36%. ASD patients with a prescribed FDA approved anti-psychotic medication showed an 86% success rate.

Discussion

For OCS with Demerol and Hydroxyzine, ASD patients on anti-psychotic medications had a higher success rate than ASD patients not on medications (p<.05). For this study, one must take into consideration that the treatment was performed at a hospital dental clinic by multiple residents. One may see a difference in outcomes at a private practice with better continuity of care by a single experienced practitioner. Another limitation is the small sample size of the group who were prescribed medications producing a low statistical power of this study.

Conclusions

1. In this study, ASD patients taking FDA approved anti-psychotic medications for behavior showed a higher oral conscious sedation success rate than ASD patients not on an FDA prescribed medication.
2. Further studies should be conducted on a larger population size to determine statistical significance.

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