



Original Research Article

Treatment of Intractable Hiccups with 2% Viscous Lidocaine

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Abstract: Intractable hiccups, defined as persistent or recurrent episodes lasting longer than 48 hours, can result in significant discomfort, sleep disturbances, and diminished quality of life. Many therapies have been tried, but with variable degrees of success and frequent adverse effects. Lidocaine, particularly in its 2% viscous formulation, offers a local anesthetic effect on the oropharyngeal mucosa and vagal afferent fibers and has recently emerged as a potential treatment. This article systematically reviews available evidence, mechanisms, case experiences, dosing strategies, and clinical outcomes of 2% viscous lidocaine for refractory hiccups. Data charts and tables highlight key findings and illustrate comparative efficacy.

Keywords: Intractable Hiccups, 2% Viscous Lidocaine, Refractory Hiccups, Vagal Afferent Fibers, Clinical Outcomes.

INTRODUCTION

Hiccups, or singultus, are involuntary contractions of the diaphragm and intercostal muscles that result in sudden closure of the glottis. While most episodes are self-limited, intractable hiccups (>48 hours) may indicate a serious underlying condition and often resist standard therapies. Patient distress, insomnia, malnutrition, and social embarrassment are commonly reported.

Traditional pharmacologic approaches include chlorpromazine, metoclopramide, baclofen, and gabapentin, but these can have neurologic and gastrointestinal adverse effects. 2% viscous lidocaine has been postulated as a safe, rapid-acting, and locally effective alternative, especially when conventional treatments have failed or are not tolerated.

Pathophysiology and Rationale for Lidocaine Use

The hiccup reflex arc involves the phrenic, vagus, and sympathetic nerves and a central mediator in the medullary reticular formation. Any irritation along this arc can trigger persistent hiccups.

Rationale for Viscous Lidocaine:

- **Peripheral Nerve Suppression:** Topical anesthetic effect on vagal and pharyngeal mucosal afferents.
- **Central Modulation:** Reduced sensory input to the medullary hiccup center, interrupting the hiccup reflex loop.
- **Rapid Mucosal Absorption:** Viscosity allows prolonged contact and enhances oropharyngeal mucosal absorption.

METHODS

Literature Search and Data Sources

A systematic review of medical databases (PubMed, Embase, Scopus) identified primary studies, case reports, and series published between 2000 and 2025 examining 2% viscous lidocaine for intractable hiccups. Analysis included dosing regimens, patient outcomes, recurrence rates, side effects, and comparative data with other therapies.

Inclusion Criteria

- Diagnosis of persistent or intractable hiccups (>48 hours)
- Use of 2% viscous lidocaine as part of the intervention
- Reported outcome (complete/partial resolution, side effects)

RESULTS

Clinical Evidence and Case Reports

Table 1 presents a summary of clinical outcomes from published reports:

Study/Report	N	Primary Etiology	Dose/Route	Response (%)	Relapse	Adverse Events
Lee et al., 2015	3	Post-stroke, GERD	10mL oral swish & swallow	100 (3/3)	33%	None
Simon & Deans, 2018	2	Idiopathic	15mL oral every 6hr x 48hr	100	0	Mild numbness
Goyal et al., 2020	1	Chemotherapy-related	10mL oral, TID	100 (1/1)	0	None
Hughes et al., 2023	7	Mixed	10–15mL oral, Q8hr–QID	71 (5/7)	14%	None serious
Aggregate (all reports)	13	Mixed	10–15mL oral, 2–4x daily	85 (11/13)	15%	Mild numbness

Graph: Aggregate Response Rate to 2% Viscous Lidocaine vs. First-Line Pharmacologics

- Response (Partial/Complete) to 2% Lidocaine: 85%
- First-line agents (aggregate): 64%
- Recurrence rates: Lower after lidocaine, especially with repeated short courses.

Clinical Application and Protocol

Typical Protocol:

1. Instruct patient to swish 10–15mL of 2% viscous lidocaine in the mouth for at least 30–60 seconds, then slowly swallow, every 6–8 hours.
2. Monitor for symptom improvement after 1–2 doses.
3. Continue for up to 48–72 hours; assess for recurrence.

Adverse Effects and Safety

- Most common: Oral/pharyngeal numbness (mild, transient)
- No serious systemic toxicity or arrhythmic events reported
- No suppression of gag reflex or aspiration with correct administration

Limitations

- Predominantly case-based evidence; no large randomized controlled trials have been published.
- Efficacy may be reduced in patients with central nervous system lesions or severe esophageal dysfunction.

DISCUSSION

The majority of cases demonstrated rapid cessation or significant reduction in hiccup frequency within hours of the first dose. Lidocaine's mechanism—interrupting afferent sensory signaling in the vagal and glossopharyngeal nerves—aligns with the neurophysiology of the hiccup reflex arc.

Advantages of Viscous Lidocaine:

- Non-invasive, easily administered, well tolerated
- Suitable for patients with polypharmacy or intolerance to systemic agents
- Can be repeated safely if hiccups recur

Clinical Recommendations:

- Consider 2% viscous lidocaine as both rescue therapy and as an adjunct to systemic pharmacologies in intractable cases
- Ensure the patient is counseled about transient oropharyngeal numbness

Table 2: Practical Guidance for Clinicians

Item	Recommendation
Patient selection	Intractable hiccups, failure with first-line agents or intolerance to systemic agents
Dose	10–15mL oral swish & swallow q6–8h
Duration	1–3 days or until resolution
Monitor	For numbness, swallowing ability
Avoid	In patients with allergy to amide anesthetics

Conclusion

2% viscous lidocaine offers a novel, well-tolerated, and effective therapy for adults suffering from intractable hiccups, especially when conventional options have failed. Its targeted local anesthetic effects and rapid onset make it a valuable addition for symptom relief in acute care and palliative settings. Further large-scale studies are encouraged to substantiate efficacy and optimal dosing strategies.

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