Induction onto Buprenorphine Utilizing Transdermal Patches Over 24-48 Hours: IPPAS Method

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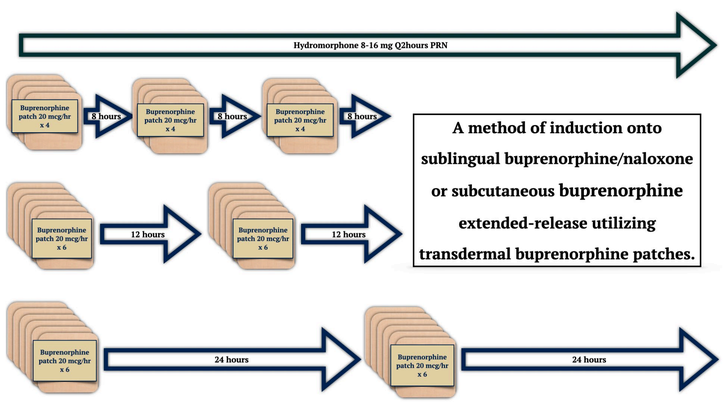
INTRODUCTION

- Buprenorphine is first-line treatment for opioid use disorder (OUD) due to its safer profile, however precipitated withdrawal can complicate the induction process and lead to drop out.[1]
- Innovative methods have been developed to facilitate the induction to Buprenorphine, eliminating the need for patients to be in withdrawal before induction.[2,3]
- Here, we present a novel induction method (IPPAS method) utilizing transdermal buprenorphine patches, aiming to simplify the dosing regimen, reduce nursing workload, and shorten the induction period, leading to fast and effective treatment. [4]

METHODS

A retrospective chart review was conducted for 51 inpatients with OUD using unregulated fentanyl, who were previously consented and treated with one of three experimental transdermal buprenorphine induction protocols between January 1, 2022 to November 31, 2023

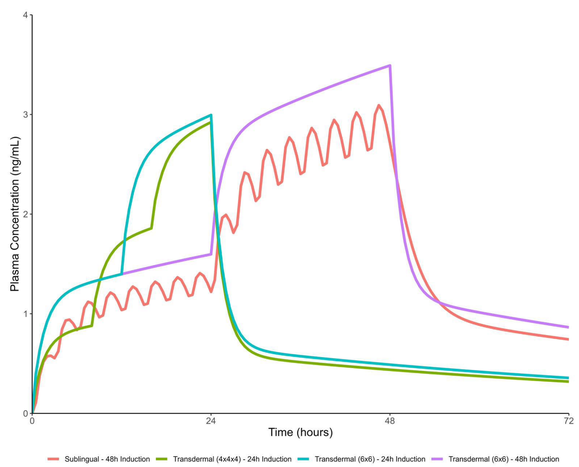
- The protocols used a staggered, cumulative application of 20µg/h buprenorphine transdermal patches over 24 – 48h
- Oral hydromorphone 16-32mg was ordered for every 2 hours PRN to ensure opioid requirements were met
- Immediately after induction, patients were started on therapeutic-dose buprenorphine and all patches were removed
- Withdrawal symptoms were tracked during induction and several hours following full-dose buprenorphine start.



RESULTS

28 patients were identified and included. 13 received the twice-dosed 24h protocol. 15 received the 48h protocol.

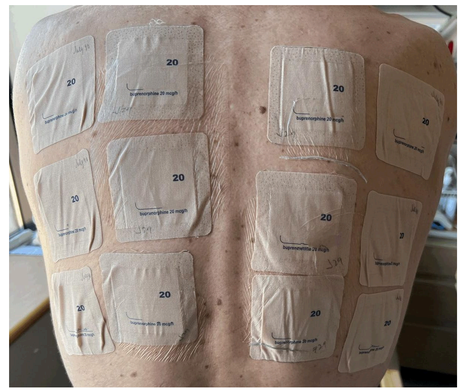
1. **21 (75%) experienced no withdrawals during or post-induction.** On clinician review of the **remaining 7 patients:**
   - 5 had COWS score elevations due to unmet opiate deficit
   - 1 began induction in moderate withdrawal that improved, then had a painful reaction to depot injection that scored high on COWS
   - 1 had no withdrawals during a successful induction but then refused buprenorphine injection and had withdrawals upon patch removal
2. **7 (25%) patients** were not successfully transitioned to buprenorphine treatment:
   - 2 Opted for methadone afterward
   - 2 Left against medical advice without any withdrawal
   - 1 Left against medical advice with withdrawal
   - 1 Opted for detox afterward
   - 1 found the buprenorphine injection too painful
3. Patients were managed with a median of 120-150mg oral morphine equivalents per 12h period, decreasing over time to a median of 0mg after the induction process.
4. There were no serious adverse events that required withdrawal from the protocol.



Pharmacokinetic modeling of plasma buprenorphine levels between different induction methods.
Comparative simulations of typical buprenorphine plasma concentration-time values for a patient receiving sublingual (0.5mg q3h 24h followed by 1mg q3h for 24h, red line), transdermal thrice-dosed buprenorphine (4 patches q8h, green) and transdermal twice-dosed buprenorphine (6 patches BID, blue) over 24 hours. Purple line shows twice-dosed transdermal buprenorphine over 48 hours (6 patches q24h)

CONCLUSION

- Participants in this study are often highly vulnerable, facing numerous adversities and barriers in accessing treatment.
- Findings indicate that patients can be effectively and safely induced onto buprenorphine with minimal withdrawal symptoms.
- Quick and effective treatment options address disparities in addiction treatment, ensuring that all patients have access to evidence-based care, promoting equitable healthcare outcomes in the context of OUD.



Patch application for transdermal induction.
Twelve 20µg/h buprenorphine patches are shown applied to a patient's back. Photo was taken and presented with permission of the patient.

AUTHOR DISCLOSURES & ACKNOWLEDGEMENTS

Dr. Azar is a consultant on Indivior-led buprenorphine extended-release studies, which are unrelated to this case series. The other authors have no disclosures or conflicts of interest.
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REFERENCES

1. Kampman K, Jarvis M. American Society of Addiction Medicine (ASAM) National Practice Guideline for the Use of Medications in the Treatment of Addiction Involving Opioid Use. J Addict Med. 2015;9(5):358-367. doi:10.1097/ADM.0000000000000166
2. Spreen LA, Dittmar EN, Quirk KC, Smith MA. Buprenorphine initiation strategies for opioid use disorder and pain management: A systematic review. Pharmacother J Hum Pharmacol Drug Ther. 2022;42(5):411-427.
3. De Aquino JP, Parida S, Sofuoglu M. The pharmacology of buprenorphine microinduction for opioid use disorder. Clin Drug Investig. 2021;41:425-436.
4. Azar P, Wong JSH, Mathew N, et al. 48-Hour induction of transdermal buprenorphine to sublingual buprenorphine/naloxone: the IPPAS method. J Addict Med. 2023:10-1097.

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