Long-Term Buprenorphine Treatment for Kratom Use Disorder: A Case Series

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Conflicts of Interest

Financial Relationship:

- Viktoriya R. Broyan: employed by Ideal Option, PLLC
  - Ideal Option provides medication-assisted treatment, primarily for patients with opioid use disorder.

- Jessica K. Brar: medical student at Elson S. Floyd College of Medicine in Washington State University
  - Completed a paid summer research internship at Ideal Option
Background

- Opioid overdose death rates have been increasing within the past few years, accounting for 47,600 American deaths in 2017.

- More recently, there has been an increased use of alternative substances (such as kratom) which can also produce central nervous system effects.

- Opioid agonist therapy with buprenorphine has been identified as an effective treatment modality against many illicit substances.
  - However, current literature includes only a few, small (sample sizes of 1-2) case reports regarding treatment of kratom use disorder with buprenorphine.
What is Kratom?

- Kratom (Mitragyna speciosa) is an herbal supplement available in multiple forms:
  - Leaves
  - Powder
  - Extract
  - Pills
  - Capsules

- Most importantly, kratom is composed of:
  - Mitragynine: acts as a partial agonist at the mu-opioid receptors and as an antagonist at the kappa-opioid receptors
  - 7-hydroxymitragynine: acts as an opioid receptor agonist and antagonist at the mu and kappa opioid receptors, respectively
Kratom Use

- Increasing reports of kratom exposure and use in the US:
  - Legal status
  - Addictive potential
  - Increasing popularity
  - Comparable price
  - Accessibility
  - Used for pain and withdrawals

- < 5g (Energized)
- 5 – 15g (Euphoric)
- > 15g (Sedated)
The Problem

Individuals with regular kratom use can become dependent, and/or experience cravings and withdrawals.
Methodology

- Patients were included in this case series if they identified kratom as their primary substance of use and were subsequently treated with buprenorphine.

- **Target variables analyzed for each patient included:**
  - Past length and average daily dose of kratom
  - Buprenorphine induction dose
  - Stabilizing and current buprenorphine dose
  - Current outpatient appointment frequency
  - Urine definitive drug test results
  - Duration of treatment
  - Current treatment status
Case Series

- 28 patients were identified with kratom as their primary substance of abuse:
  - 11 females
  - 17 males
  - Age range: 24 to 53 years (average: 36 years)

- On average, patients used 92 grams of kratom per day before seeking treatment
  - History of kratom use ranged anywhere from 1 month to 25 years
# Results

<table>
<thead>
<tr>
<th>Buprenorphine Induction Dose</th>
<th>Stabilizing Buprenorphine Dose</th>
<th>Last/Current Buprenorphine Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td># of patients</td>
<td># of patients</td>
<td># of patients</td>
</tr>
<tr>
<td>1 mg</td>
<td>1 mg</td>
<td>0.25 mg</td>
</tr>
<tr>
<td>2 mg</td>
<td>2 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>4 mg</td>
<td>4 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>6 mg</td>
<td>6 mg</td>
<td>4 mg</td>
</tr>
<tr>
<td>8 mg</td>
<td>8 mg</td>
<td>6 mg</td>
</tr>
<tr>
<td>12 mg</td>
<td>12 mg</td>
<td>8 mg</td>
</tr>
<tr>
<td>16 mg</td>
<td>16 mg</td>
<td>12 mg</td>
</tr>
<tr>
<td>18 mg</td>
<td>18 mg</td>
<td>12 mg</td>
</tr>
<tr>
<td>20 mg</td>
<td>20 mg</td>
<td>20 mg</td>
</tr>
</tbody>
</table>

- 20 out of 28 patients are still receiving maintenance treatment
  - 6 patients were lost to follow-up due to missed appointments
  - 1 tapered down to 0.25mg of buprenorphine and self-discharged
  - 1 moved out of town

- Patients not lost to follow-up have been in ongoing treatment anywhere from 4.5 months to 22 months
  - Majority of the patients are seen every 2 weeks
Results continued

<table>
<thead>
<tr>
<th>Past Kratom Use (g/day)</th>
<th>Number of Patients</th>
<th>Stabilizing BUPNx dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>3</td>
<td>10 mg</td>
</tr>
<tr>
<td>11-20</td>
<td>4</td>
<td>12 mg</td>
</tr>
<tr>
<td>21-30</td>
<td>2</td>
<td>8 mg</td>
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<tr>
<td>31-40</td>
<td>1</td>
<td>16 mg</td>
</tr>
<tr>
<td>41-50</td>
<td>1</td>
<td>10 mg</td>
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<tr>
<td>51-60</td>
<td>7</td>
<td>15 mg</td>
</tr>
<tr>
<td>61-70</td>
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<td>-</td>
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<tr>
<td>71-80</td>
<td>2</td>
<td>16 mg</td>
</tr>
<tr>
<td>81-90</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>91-100</td>
<td>1</td>
<td>12 mg</td>
</tr>
<tr>
<td>101-110</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>111-120</td>
<td>2</td>
<td>16 mg</td>
</tr>
<tr>
<td>&gt;121</td>
<td>4</td>
<td>12 mg</td>
</tr>
</tbody>
</table>

There was no correlation between stabilizing buprenorphine dose and past average daily dose of kratom.
Conclusion

- Largest case series exploring buprenorphine treatment for kratom use disorder.

- Findings suggest that buprenorphine can be an effective treatment option.
  - This is especially important since kratom is being used in place of traditional opioids.

- Treatment should be tailored to each individual, to determine the appropriate buprenorphine dose.
References


