# A Prospective Poison Center Experience Of Sustained-Release Bupropion Over 40-Months In Children

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**Citation**

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**Abstract**

Background: The incidence of seizures following ingestion of bupropion sustained release (Bup-SR) ingestion in children is unknown. We conducted a prospective poison center survey of in-patient monitoring in children ≤ 3 years old with presumed isolated Bup-SR ingestion during 40 months.

Methods: Inclusion criteria: (1) isolated Bup-SR ingestion, (2) ≤ 3 years old. We recommended a minimum of 24 hours of in-patient observation. Adverse events (neurological events, etc.) were documented.

Results: 71 patients fulfilled the inclusion criteria with 5 patients refusing admission. All patients, including patients whom remained at home were followed for at least 24 hours. Of the 71 admitted children the mean age was 18 [Range: 10-36] months with a range of amount ingested from unknown to 1200 milligrams. No seizures, coma or short-term adverse outcomes were documented in the 71 admitted or 5 non-admitted patients within 24 hours.

Conclusions: We did not detect any adverse events following isolated Bup-SR ingestion in children ≤ 3 years old. The major limitation to this study is the small sample size.

## BACKGROUND

Bupropion, a dopamine agonist, became available as sustained-released preparation for use in smoking cessation in 1996 after previously being used as an antidepressant. Bupropion toxicity may result in tachycardia and more significantly seizure activity. The incidence of seizure in adults following therapeutic immediate-release and sustained-released (SR) formulations is 0.4% and 0.4% respectively. ([1,2]) In the overdose setting immediate-release bupropion may result in seizures in 21% of cases. ([2]) The incidence of seizures in children ingesting sustained-released bupropion is unknown.

This study was done to describe the incidence of seizures after bupropion-SR ingestion in children under three years of age.

## METHODS

We prospectively enrolled patients during a 40 month period. All children reported to a regional poison center who were less than three years old and had an isolated bupropion -SR ingestion were included in this study. A standardized computer enrollment form was used. The study received expedited review from the institutional review board for all patient identifiers were removed and no new interventions were done. One investigator reviewed all the charts retrospectively for adherence to the inclusion criteria and agreement with outcome.

We recommended a minimum of 24 hours of in-patient observation for all ingestions of more than one SR preparation. Those who ingested only one pill could be watched at home if the care givers were perceived as reliable and they lived in close proximity to a health care facility. All adverse events (neurological events, etc.) were documented. Exclusion criteria were inability to meet inclusion criteria.

## RESULTS

There were 71 patients who fulfilled the inclusion criteria and were admitted for observation and an additional 5 patients who refused admission. All patients, including patients whom remained at home were followed for at least 24 hours. Of the 71 admitted children the mean age was 18

[Range: 10-36] months with a range of amount ingested from unknown to 1200 milligrams. Of the 5 non-admitted children the mean age was 20 [Range: 15-32] months with a range of amount ingested from unknown to 1200 milligrams. No disagreements were reported with regard to outcome or enrollment.

No seizures, coma or short-term adverse outcomes were documented in the 71 admitted or 5 non-admitted patients within 24 hours. Tachycardia occurred in 21 of 71 patients with resolution within six hours.

## DISCUSSION

In adults with bupropion overdose, seizures, agitation and tachycardia have been reported. White and Langford recommended that in addition activated charcoal should be given at 6 hour intervals for 24 hours post ingestion ([3]). This recommendation was made because of the possibility of bezoar formation seen in 47 year old female ([3]). In addition there have also been reports of recurrent seizure 8-10 hours after bupropion-SR overdose ([4,5]). In general, because of this delay adults whom ingest bupropion-SR should be admitted for observation.

Unfortunately there is less of a consensus about how to treat children who unintentionally ingest Bupropion SR. Our study revealed the incidence of seizures was low. Some limitations of our study include the small sample size, lack of confirmed blood levels and the heterogeneous population (different doses and body weights, etc).

From the results of this study we conclude that in children less than three with an isolated bupropion SR ingestion the risk of seizure is low.

### References

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