

Tramadol and Naloxone: Seizure Association and/or Therapeutic Effect

Neeraj Chhabra^{1,2}, Erin M Pallasch³, Michael S Wahl³, Sean M Bryant^{1,2}

¹Toxikon Consortium, Chicago, IL, USA, ²Cook County (Stroger) Hospital, Chicago, IL, USA, ³Illinois Poison Center, Chicago, IL, USA

Introduction

Tramadol has been associated with seizures at therapeutic dosing as well as in overdose. Controversy surrounds the efficacy of naloxone in tramadol-intoxication and its association with seizures.

Research Question

We sought to characterize the incidence of tramadol exposures reported to one regional poison center (RPC), the temporal association of seizures with naloxone administration, as well as the response to naloxone.

Methods

RPC cases were retrospectively queried involving tramadol from January 1, 2002 through December 31, 2015. In addition to recording trends for this time period, data abstracted from 2014 and 2015 included clinical details, presence of seizures, administration of naloxone, and response to naloxone.

Results

RPC calls involving tramadol increased steadily from a low of 23 cases in 2002 to 358 cases in 2012. Following a drop in cases to 297 in 2013, the increase continued with 327 cases in 2014 and 415 cases in 2015. Of the 742 cases in 2014 and 2015, 50 (6.7%) were associated with seizures, all of which were self-limited. Naloxone was administered in 93 (12.5%) cases with 9 (9.7%) involving seizures after administration. One case involved a seizure 5 hours post-naloxone administration and another involved a seizure 1 day after discontinuation of a naloxone infusion. Removal of these cases revealed a 7.5% seizure rate. Of patients receiving naloxone, 23 (24.7%) had a documented beneficial response.

Discussion

Tramadol exposures increased throughout the study period. The only year-to-year drop occurred between 2012 and 2013 which interestingly coincided with the rescheduling of tramadol to a schedule-IV medication in the state served by the RPC. Seizures after tramadol exposure occurred in 6.7% of cases. Seizures following naloxone administration were also uncommon with some documented many hours after administration. It is unclear whether seizures were related to tramadol, naloxone, unknown coingestants, or preexisting seizure disorder. Naloxone administration had an inconsistent response rate and it is unclear how many intubations were prevented by its administration.

Conclusions

Tramadol exposures reported to this RPC increased markedly during the 14-year study period. The response to naloxone was variable and its association with an increased seizure rate is not supported by these data.