Trends in Benzodiazepine and Opioid Analgesic Misuse and Mortality Reported to Poison Centers across the United States

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Key Message:

- **Benzodiazepines, when misused with opioid analgesics, potentiated the risk of overdose death**
- **Physicians should be cautious when co-prescribing these medications, especially in males and older patients**

Introduction

- Benzodiazepines are sedating medications that are relatively nonlethal when used alone
- Increasingly, benzodiazepines are misused with opioid analgesics to enhance opioid intoxication

In a cohort of people who misused or abused opioid analgesics and benzodiazepines:

- Describe changes over time in the misuse of opioid analgesics, benzodiazepines and the combination of both
- Examine the risk of overdose death when opioid analgesics and benzodiazepines were used in combination compared to opioid analgesic or benzodiazepine use alone

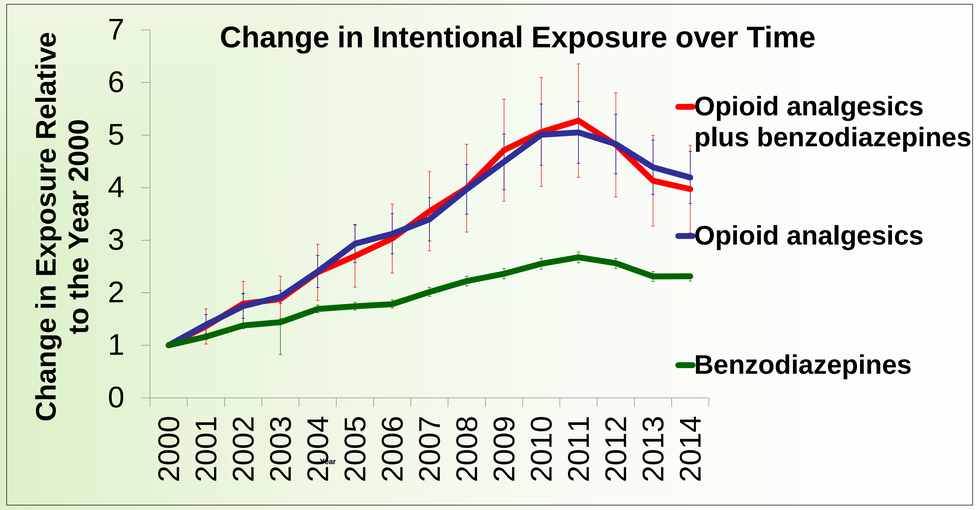
Methods

- Data were obtained from the National Poison Data System (NPDS) which collects information from calls to 55 poison centers across the US
- From 1/2000 to 12/2014, we identified all intentional exposures involving benzodiazepines and opioid analgesics reported to the NPDS
- **Exposure types:** intentional abuse, misuse or unknown intent; cases of intentional self-harm were excluded
- **Predictor variables:** opioid analgesics, benzodiazepines and the combination of both
- Poisson regression compared the number of yearly cases relative to 2000
- Multiple variable logistic regression determined the risk of death with opioid analgesics + benzodiazepines compared to opioid analgesics or benzodiazepines alone

Results

Total Identified Intentional Exposures (2000-2014)

- Benzodiazepines (n=104,297)
- Opioids (n=67,491)
- 32% of the opioid exposures also involved a benzodiazepine (n=21,803)
- Exposures for <u>all groups</u> were highest in 2011
- 801 (1.2%) of the opioid exposures resulted in death
- Of these deaths, 322 (40%) also involved a benzodiazepine (+ opioid)



Odds of overdose death among people who misused opioid analgesics compared to people who misused benzodiazepines or opioid analgesics + benzodiazepines

Variables	Exposures (% resulting in death)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Drug of Misuse or Abuse			
Benzodiazepines + opioids	6,124 (0.95%)	**1.6 (1.2-2.2)****	**1.6 (1.2-2.2)****
Benzodiazepines	31,787 (0.03%)	**0.05 (0.03-0.1)*****	**0.06 (0.03-0.1)*****
Opioids	30,704 (0.66%)	Ref.	Ref.
Gender			
Female	29,001 (0.26%)	**0.6 (0.5-0.9)****	**0.7 (0.5-0.9)***
Male	33,456 (0.41%)	Ref.	Ref.
Age (in 10 years)	N/A	**1.2 (1.1-1.3)*****	**1.1 (1.0-1.2)*****

*p<0.05; **p<0.01; ***p<0.001

Conclusions

- Intentional abuse of opioid & benzodiazepines increased from 2000-2010, but declined in 2011
- Risk of death increased with older age, male gender and co-use of opioids + benzodiazepines

Limitations: The Poison Center relies on spontaneous reports, thus the number of cases is underreported

Drug identification is based on the caller's history and may be inaccurate, particularly in confused or comatose patients

Next Steps: Identify the difference in medical outcomes and clinical effects among patients who abused/misused benzodiazepines, opioid analgesics or both.

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