Available online at www.sciencedirect.com

Public Health

journal homepage: www.elsevier.com/puhe

Original Research

Comparison of poisonings managed at military and Veterans Administration hospitals reported to Texas poison centers

M.B. Forrester*

Department of State Health Services, Environmental Epidemiology and Disease Registries Section, 1100 W 49th Street, Austin, TX 78756, USA

ARTICLE INFO

Article history:
Received 3 April 2016
Received in revised form
15 September 2016
Accepted 14 October 2016
Available online 19 November 2016

Keywords:
Military hospital
Veterans hospital
Poisoning
Poison centre

ABSTRACT

Objectives: There is little information on poisonings managed at military and Veterans Administration (VA) hospitals. This investigation described and compared poisonings reported to Texas poison centers that were managed at military and VA hospitals.
Study design: Retrospective analysis of poison centre data.
Methods: Cases were poisonings among patients aged 18 years or more reported to Texas poison centers during 2000–2015 where management occurred at a military or VA hospital. The distribution of exposures for various demographic and clinical factors was determined for military and veterans hospitals and comparisons were made between the two groups.
Results: There were 4353 and 1676 poisonings managed at military and VA hospitals, resepctively. Males accounted for 50.5% of the military hospital patients and 84.9% of the VA hospital patients. The mean age for military hospital patients was 31 years and for VA hospital patients was 50 years. The proportion of poisonings managed at military hospitals and VA hospitals, respectively, were intentional (70.0% vs 64.1%), particularly suspected attempted suicide (57.3% vs 47.7%), and unintentional (25.0% vs 30.5%). More than one substance was reported in 37.7% of military and 33.2% of VA hospital poisonings. The most commonly reported substance categories for poisonings managed at military and VA hospitals, respectively, were analgesics (28.4% vs 19.7%), sedatives/hypnotics/antipsychotics (24.7% vs 23.4%), antidepressants (18.7% vs 19.7%) and alcohol (11.3% vs 10.6%).
Conclusions: A number of differences were observed between poisonings managed at military and VA hospitals. These differing patterns of poisonings may need to be taken into account in the education, prevention and treatment of poisonings at these hospitals and among the populations they serve.

* Fax: +1 512 776 7689.
E-mail address: mathias.forrester@dshs.state.tx.us.
http://dx.doi.org/10.1016/j.puhe.2016.10.015

Introduction

The USA has 65 military hospitals across the nation and around the world.[1] In addition, there are 150 Veterans Administration (VA) hospitals.[2] According to the Centers for Disease Control and Prevention (CDC), unintentional poisoning was the ninth leading cause of non-fatal injuries treated in hospital emergency departments in the USA in 2013.[3] It might be expected that a portion of the patients seen at military and VA hospitals are there because of poisonings.

However, information on poisonings managed at military and VA hospitals is limited. One potential source of such information is poison centers. In the USA, poison centers are telephone consultation services that assist in the management of potentially adverse exposures (poisonings) to a variety of substances. Poison centers receive calls from a variety of sources, including healthcare facilities. Of the 2.2 million poisonings reported to USA poison centers during 2014, 28.3% were managed at a healthcare facility.[4] One study compared patients managed at military hospitals and VA hospitals that were reported to California poison centers. However, this was a meeting abstract that provided data on a limited number of variables for a single year.[5]

The objective of this study was to describe and compare poisonings reported to Texas poison centers that were managed at military and VA hospitals in the state. In fiscal year 2014, of the 1.1 million active duty members stationed in the USA, 117,623 (10.2%) were in Texas, the third largest percent after California and Virginia.[2] Moreover, as of September 30, 2014, of the 22.0 million veteran population, 1,680,000 (7.6%) were in Texas.[6] The previous study had reported differences in poisonings managed at military and VA hospitals.[5]

Methods

The data source for this retrospective investigation was the Texas Poison Center Network (TPCN), which consists of six poison centers that together service the entire state, a population currently over 25 million. The Texas poison centers use a common electronic database to collect information on calls in a consistent manner.

For this investigation, the term 'poisoning' refers to all exposures reported to the poison centre whether or not the exposure was considered to be toxic. Cases were all exposures among patients aged 18 years or more reported to the TPCN during 2000–2015 where management was reported to have occurred at a military or VA hospital. These cases were identified by reviewing the list of healthcare facilities coded in the TPCN database for military and VA hospitals in the state. Exposures with codes for either a military or VA hospital in either the Initial Healthcare Facility (InitialHCF) or the Final Healthcare Facility (FinalHCF) field in the TPCN database were included in the study. Exposures not followed to a final medical outcome and those involving more than one substance were included in the study. Exposures reported from outside of Texas were excluded.

The cases were grouped into whether they were managed at a military hospital or a VA hospital. Those managed at both types of hospital ($n = 5$) were included in the military hospital group. For the two types of hospital, the distribution of cases was determined for patient age and gender, number of substances or products involved in the exposure (one vs two or more), exposure route, exposure site (type of location where the exposure occurred), exposure reason (circumstance), management site, medical outcome and major substance category. The data variables and subgroups for these variables were standardized by the American Association of Poison Control Centers (AAPCC).[7]

The exposure reason (circumstance) is divided into the following major groups: unintentional (i.e. accidental), intentional (suspected attempted suicide, abuse, etc.), adverse reaction, other (malicious, tampering) and unknown. The distribution of cases was determined for both the major groups and the subgroups within them.

The medical outcome or severity of an exposure is assigned by the poison centre staff and is based on the observed or anticipated adverse clinical effects. Medical outcome is classified according to the following criteria: no effect (no symptoms due to exposure), minor effect (some minimally troublesome symptoms), moderate effect (more pronounced, prolonged symptoms), major effect (symptoms that are life-threatening or cause significant disability or disfigurement) and death. A portion of exposures are not followed to a final medical outcome because of resource constraints or the inability to obtain subsequent information on the patient. In these instances, the poison centre staff records the expected outcome of the exposure. These expected outcomes are grouped into the following categories: not followed but judged as non-toxic exposure (symptoms not expected), not followed but minimal symptoms possible (no more than minor symptoms possible) and unable to follow but judged as a potentially toxic exposure. Another medical outcome category is unrelated effect in which the exposure was probably not responsible for the symptoms. The analysis of medical outcome was performed for these specific outcomes as well as grouping the outcomes into those known or expected to not be serious (no effect, minor effect, not followed and judged non-toxic, not followed and judged minimal effects) and those known or expected to be serious (moderate effect, major effect, death, unable to follow and potentially toxic).

The AAPCC groups substances involved in exposures into 66 major categories. The analysis of major substance categories was limited to the top 10 major substance categories reported for military and VA hospitals combined.

Differences in the distribution of exposures between the two types of hospital were evaluated for statistical significance by calculating the risk ratio of the VA hospital and military hospital percent for each subgroup and 95% confidence interval (CI) by the Newcombe-Wilson method without continuity correction.[8] The risk ratios were considered statistically significant if the 95% CI excluded 1.00. *P*-values were not calculated.

The Texas Department of State Health Services institutional review board considers this analysis exempt from ethical review.