International Journal of Impotence Research (2017) 29, 54–56

www.nature.com/ijir

ORIGINAL ARTICLE

Prevalence of use of erectile dysfunction medication by Dutch military personnel between 2003 and 2012

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Use of ED medication can be seen as a marker for ED. ED is associated with increasing age, exposure to traumatic events and physical injuries in military veterans. The objective of this study was to assess the prevalence of use of ED medication in Dutch military personnel in the period 2003–2012 and to assess its association with age and psychotropic medication use. Data on dispensing of ED medication, age and co-medication with psychotropic medication of all Dutch military personnel between 2003 and 2012 were collected. The prevalence of ED medication use in each year was estimated, stratified for age and use of psychotropic medication. The number of ED medication users increased a hundredfold from 0.09 to 9.29 per 1000 per year between 2003 and 2012. ED medication was more often used by men over 40 than under 40 (prevalence in 2012: 2.4% vs 0.2%, OR (2003–2012, adjusted for calendar year) 15.6, 95% CI 13.5–17.9) and by men using psychotropic medication (prevalence in 2012: 3.8% vs 0.9%, OR (2003–2012, adjusted for calendar year) 3.13, 95% CI 2.66–3.67). This study shows a strong increase between 2003 and 2012 in a number of ED medication users in male Dutch military personnel. ED medication use increases with age and with psychotropic medication use.

International Journal of Impotence Research (2017) **29,** 54–56; doi:10.1038/ijir.2016.44; published online 17 November 2016

INTRODUCTION

Sildenafil, tadalafil and vardenafil are approved for the treatment of ED and use of these medications can be seen as a marker for ED. It is known that in military veterans, the prevalence of ED is associated with increasing age, exposure to traumatic events and physical injuries.[1] ED is associated with post-traumatic stress disorder and other combat-related mental health disorders.[2] It was recently found that ED is reported by 33% of US male military personnel aged 21–40.[3] It has not yet been studied if this self-reported ED is reflected in ED medication use.

METHODS

Study population

All male Dutch military personnel employed by the Netherlands Ministry of Defence in the years 2003 through 2012 were included in this study.

Data sources

Dutch military personnel are treated within the military health-care system paid for by a mandatory health-care insurance. Therefore, all medication are distributed within the military health-care system. ED medication and psychotropic medication are distributed through the military pharmacy at the central military hospital in Utrecht. Drug-dispensing data for this study were obtained from the pharmacy information system of this pharmacy. Information about dispensed medication included patient data (anonymous ID, gender and year of birth), drug dispensed, dispensing date, number of units dispensed and prescribed daily dose. Data on numbers of military personnel were provided by the Human Resources Department of the Ministry of Defence.

Data analysis

The year prevalence (per 1000 persons per year) of use of ED medication (sildenafil, tadalafil, verdenafil and intracavernous papaverine/fentolamine) in male military personnel stratified by age (over and under 40) and use of psychotropic medication (antidepressants, antipsychotics, ADHD medication, antiepileptic drugs, benzodiazepines and all other sedatives) was calculated by dividing the number of users that had at least one prescription for ED medication in a year by the total male military population of the corresponding year and the number of psychotropic medication users of the corresponding year. Odds ratios, including 95% confidence intervals,[4] of use of ED medication were calculated using logistic regression comparing age categories and use or no use of psychotropic medication adjusted for calendar year.

RESULTS

The number of ED medication users increased a hundredfold from 0.09 to 9.29 per 1000 per year between 2003 and 2012 (Figure 1). ED medication was more often used by men over 40 than under 40 (prevalence in 2012: 2.4% vs 0.2%, OR (2003–2012, adjusted for calendar year) 15.6, 95% CI 13.5–17.9) and by men using psychotropic medication (prevalence in 2012: 3.8% vs 0.9%, OR (2003–2012, adjusted for calendar year) 3.13, 95% CI 2.66–3.67). There was a significant interaction between age over 40 and use of psychotropic medication on ED medication use (Table 1). Risk on ED medication use was highest in men over 40 using psychotropic medication (OR 47.4, 95% CI 38.2–58.8, adjusted for calendar year). Over the 10-year period, 30% of users received only one dispensing of ED medication, 50% received two–five dispensings, 20% received six dispensings or more.

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Received 19 February 2015; revised 9 August 2016; accepted 3 October 2016; published online 17 November 2016

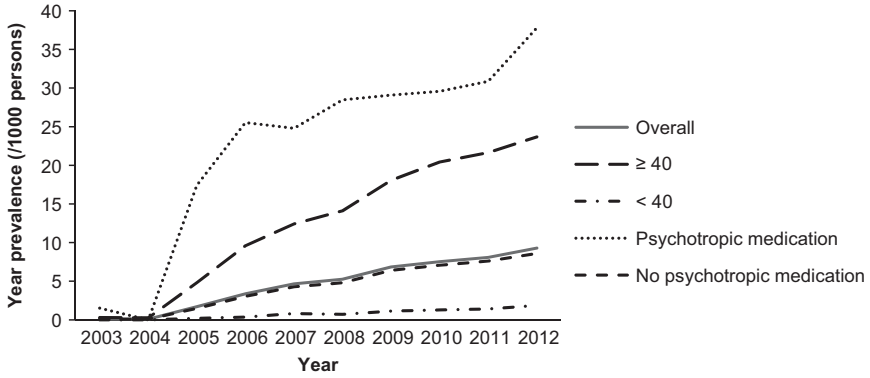

Figure 1. Comparison of year prevalence per 1000 persons of ED medication use by Dutch military personnel, under and over the age of 40 and with or without psychotropic medication.

Table 1. Association between age, psychotropic medication use and ED medication use

	OR (95% CI)
Age < 40 years old and no psychotropic medication	(reference)
Age < 40 years old and psychotropic medication	8.5 (5.9–13.1)
Age ⩾ 40 years old and no psychotropic medication	16.9 (14.6–19.6)
Age ⩾ 40 years old and psychotropic medication	47.4 (38.2–58.8)

DISCUSSION

This study shows a strong increase in number of ED medication users in male Dutch military personnel from 0.09 per 1000 to 9.29 per 1000 between 2003 and 2012. ED medication use increases with age and with psychotropic medication use as could be expected.[5,6]

The strong increase in prevalence could be explained by the relatively recent year of introduction of sildenafil, only 5 years before the first time point in this study. ED has been brought under the attention of the male population and the number of users in the general population has increased in a similar way only 5 years earlier. Increased awareness of ED, lowering of the threshold to seek medical help and increased prescribing of ED medication once the diagnosis is made may all contribute to the increase in prevalence. ED medication has been approved in the Netherlands since 1998 for the treatment of ED in men over 40. It is known that ED is more prevalent in men over 40;[5,6] therefore, it is to be expected that an increase of ED medication use over 40 was found. The average age of the male military population over 40 remained the same over the years, 46 in 2003 and 48 in 2012. Psychiatric disorders have been associated with ED treatment in military personnel,[7] which was confirmed by our results. The association with psychotropic medication use could possibly also be explained by an association with traumatic events during missions. Post-traumatic stress symptoms are found in Dutch military personnel after deployment to Afghanistan.[8] The overall prevalence of ED medication use was relatively low when compared with the self-reported ED in other studies.[3] Wilcox *et al.* found that over one-third of veterans under 40 reported ED. The difference with the much lower prevalence of ED medication use lies somewhere in the cascade of events from awareness of ED to dispensing of the medication. Before receiving treatment, a patient has to recognize that he has a problem, see a physician who recognizes and diagnoses the problem and decide to prescribe medication. Subsequently the patient needs to visit a pharmacy to collect the medication. It seems that at least part of the men reporting ED are undertreated.[9,10]

The overall prevalence of 9.29 per 1000 per year is also slightly lower than the numbers found by Breyer *et al.*[2] who found that 1.8% of veterans without mental health diagnoses were prescribed medication for sexual dysfunction (versus 9 and 5.8% veterans with post-traumatic stress disorder or any other mental health diagnosis). However, in this study, only Iraq and Afghanistan veterans were included, whereas our study included all military personnel, who virtually all were deployed, but not necessarily to areas with the risk of experiencing traumatic events comparable to Iraq and Afghanistan. It is found that Dutch military personnel that are deployed to Afghanistan have an 80% higher incidence of consulting Military Mental Health Services than non-deployed personnel.[11]

The strength of the present study is that it used pharmacy data on the entire Dutch military population over 10 years.

Although all military personnel are obligated to collect their medication within the military health-care system, it is possible for military personnel to go to a pharmacy outside the military system, leading to an underestimation of the total use of ED medication. Also it is possible to order ED medication (illegally) outside the official health-care system, which would also lead to an underestimation of the total number of users of ED medication. However, since ED medication is fully reimbursed within the military organization and purchase outside this system requires copayments, we believe this to be of low impact. We did not explore the dose and number of units per dispensing in this study, because we feel this provides little extra information on the degree of sexual dysfunctioning, but is rather associated with both prescribing practices and sexual activity of the subject.

This study comprises all Dutch military personnel, of which part has been on a mission. Future research on the sequence of events is needed to associate ED medication use to military missions, post-traumatic stress disorder and other combat-related mental health disorders.

CONCLUSION

Overall, the number of ED medication users in Dutch military personnel increased strongly over the last decade and is associated with age over 40 and psychotropic medication use, suggesting an association with mental health.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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