

What is already known on this topic

The prevalence of hypospadias may be increasing

Clomifene is structurally related to diethylstilbestrol, which has been linked to urogenital anomalies and testicular cancer in males exposed in utero, and possibly to hypospadias in male offspring of women exposed to diethylstilbestrol in utero

What this study adds

This large population based case-control study does not provide any evidence that clomifene is a risk factor for hypospadias

drugs and antiepileptic drugs and we also collected data on pre-eclampsia, as it has been associated with hypospadias. We used conditional logistic regression adjusted for available variables to estimate the relative risk for hypospadias after exposure to clomifene. We found an adjusted odds ratio of 0.48 (95% confidence interval 0.15 to 1.54) for hypospadias associated with clomifene (table). Restricting the exposure to clomifene to the first trimester and up to 30 days before the time of conception did not change the risk estimate substantially.

Comment

Clomifene was not associated with any increased risk of hypospadias. Several factors should be taken into account when interpreting this study. The full and independent registration of births, birth outcome, and prescriptions prevented selection bias and some types of information bias as this study was based on routinely recorded data. Any non-compliance with the use of clomifene, however, might bias the estimates of risk towards the null.

Characteristics of 319 boys with hypospadias whose mothers used clomifene during early pregnancy and 3190 population controls

	No (%) of cases	No (%) of controls	Crude odds ratio	Adjusted odds ratio (95% CI)*
Prescription for clomifene†	3 (0.9)	59 (1.8)	0.51	0.48 (0.15 to 1.54)
Maternal age (years):				
<25	57 (17.9)	459 (14.4)	1	1
25-30	144 (45.1)	1460 (45.8)	0.80	0.84 (0.61 to 1.17)
>30	118 (37.0)	1271 (39.8)	0.75	0.85 (0.59 to 1.22)
Birth order:				
1	155 (48.6)	1326 (41.6)	1	1
>1	164 (51.4)	1864 (58.4)	0.76	0.79 (0.62 to 1.02)
Maternal pre-eclampsia†	18 (5.6)	71 (2.2)	2.57	2.43 (1.43 to 4.12)
Maternal epilepsy†	3 (0.9)	23 (0.7)	1.31	1.32 (0.39 to 4.49)
Maternal diabetes†	2 (0.6)	10 (0.3)	2.00	2.01 (0.44 to 9.21)

*Adjusted for the other variables in the table.

†Reference group is women not exposed to clomifene.

Contributors: HTS developed the idea and designed the study together with LP and MVS. LP, MVS, MN, and BN collected and validated the data. LP, MVS, and HTS analysed the data. HTS wrote the first draft. EEH, LP, MVS, MN, and BN critically revised the paper. HTS is guarantor.

Funding: Western Danish Research Forum for Health Sciences.

Competing interests: None declared.

- 1 Furr BJ, Woodburn JR. Luteinizing hormone-releasing hormone and its analogues: a review of biological properties and clinical uses. *J Endocrinol Invest* 1988;11:535-57.
- 2 Strohsnitter WC, Noller KL, Hoover RN, Robboy SJ, Palmer JR, Titus-Ernstoff L, et al. Cancer risk in men exposed in utero to diethylstilbestrol. *J Natl Cancer Inst* 2001;93:545-51.
- 3 Wilcox AJ, Baird DD, Weinberg CR, Hornsby PP, Herbst AL. Fertility in men exposed prenatally to diethylstilbestrol. *N Engl J Med* 1995;332:1411-6.
- 4 Klip H, Verloop J, van Gool JD, Koster ME, Burger CW, van Leeuwen FE, OMEGA Project Group. Hypospadias in sons of women exposed to diethylstilbestrol in utero: a cohort study. *Lancet* 2002;359:1102-7.
- 5 Geier A, Lumenfeld B, Pariente C, Kotev-Emeth S, Shadmi A, Kokia E, et al. Estrogen receptor binding material in blood of patients after clomiphene citrate administration: determination by a radioreceptor assay. *Fertil Steril* 1987;47:778-84.

(Accepted 9 November 2004)

doi 10.1136/bmj.38326.606979.79

Injuries and deaths caused by unexploded ordnance in Afghanistan: review of surveillance data, 1997-2002

Oleg O Bilukha, Muireann Brennan

In 2000-2, Afghanistan had the highest number of casualties due to landmines and unexploded ordnance in the world.¹ Increasing international awareness of the public health threat posed by landmines is the legacy of the International Campaign to Ban Landmines. More attention must be paid to the growing and equally deadly threat posed by unexploded ordnance.

Methods and results

We reviewed the surveillance database on injuries due to unexploded ordnance and landmines maintained by the United Nations Mine Action Center for Afghanistan. About 70% of records in the database came from the clinic based surveillance system operated by the International Committee of the Red

Cross, which, in 2002, included 390 health facilities.² Other data were collected through mine clearance teams, education programmes to minimise the risks posed by mines, and programmes to help victims. We excluded duplicate entries by comparing the demographics, time, and location of injury of the victim. We used JMP (release 5.0) from SAS Institute for statistical analyses. Surveillance for landmine and unexploded ordnance injuries in Afghanistan is predominantly clinic based, so those who die before reaching a clinic, whose injuries are too minor to seek medical care, and who do not have access to medical facilities are less

Centers for Disease Control and Prevention, 1600 Clifton Road, Mailstop C-09, Atlanta, Georgia 30341, USA

Oleg O Bilukha
epidemic intelligence service officer
Muireann Brennan
medical epidemiologist

Correspondence to:
O Bilukha
obilukha@cdc.gov

BMJ 2005;330:127-8

This article was posted on bmj.com on 7 January 2005: <http://bmj.com/cgi/doi/10.1136/bmj.38337.361782.82>

What is already known on this topic

Landmines pose a considerable public health threat and economic burden in post-conflict situations; most victims are civilians, and many are children and women

What this study adds

Unexploded ordnance currently causes more injuries than landmines

Unexploded ordnance, as opposed to landmines, predominantly injures children

likely to be captured by surveillance. The resulting sensitivity of the system is estimated to be less than 50%.^{1 3}

The database included 6114 injuries due to landmines and unexploded ordnance from January 1997 to September 2002. Overall, 92% of reported injuries were in males, and 54% were in children under 18 years of age. Only 13% of injuries were associated with military activity.

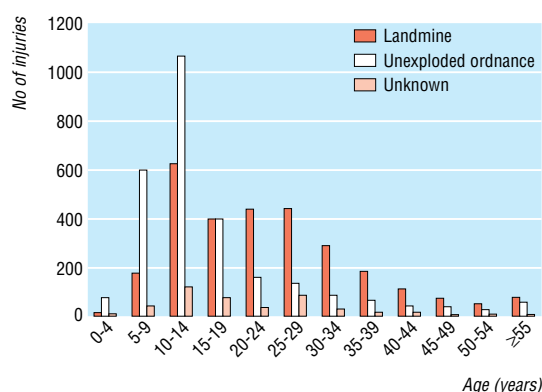
The number of victims reported each year varied between 516 in 1997 and 1561 in 1999. The proportion of injuries due to unexploded ordnance increased from 37% in 1997 to 57% in 2002, and the proportion of injuries due to landmines decreased correspondingly from 57% to 36% (χ^2 for linear trend 114.8; $P < 0.001$).

The age distribution curve for injuries due to unexploded ordnance was shifted to the left compared with that for landmines, indicating that children were injured mostly by unexploded ordnance, whereas adults were injured predominantly by landmines (figure). Most injuries due to unexploded ordnance were in children aged 5-14 years.

In all, 42% of injuries due to unexploded ordnance in children (aged 0-17 years) were when the victim was playing or tampering with explosives. The proportion of children injured while tampering or playing was three times greater among those injured by unexploded ordnance compared with those injured by landmines, indicating that children are more likely to tamper with unexploded ordnance because of its higher visibility.

Comment

Unexploded ordnance currently causes more injuries than landmines. The policy debate on landmines must



Injuries due to landmines and unexploded ordnance in Afghanistan, 1997-2002

now be widened to include threats posed by unexploded ordnance. Public health advocates must inform policy makers about the potentially devastating effects of widespread deployment of explosives which fail to explode on impact and persist for years. Recent conflicts in Afghanistan and Iraq were characterised by high altitude bombardment, targeting, among other things, munitions dumps, which may cause wide scattering of explosives. Newer munitions, such as cluster bombs, are being used.⁴ Even in less technically advanced conflicts, such as the current conflict in Darfur, aerial bombardment is being reported.

Compared with landmines, unexploded ordnance is not only more visible, but also easier and cheaper to remove. Characterising the type of ordnance more carefully is essential. Do the colour and shape of cluster bombs encourage tampering by children? Can new munitions be designed to be less attractive to children? Epidemiological data are essential for planning and designing efforts that educate children and inform policy makers about the dangers of unexploded ordnance.

We thank the United Nations Mine Action Center for Afghanistan and the International Committee of the Red Cross for providing the data on individuals injured by unexploded ordnance and landmines in Afghanistan and Mark Anderson and Bradley A Woodruff for their comments on the draft manuscript.

Contributors: OOB and MB designed the study and obtained the data. OOB analysed the data. Both authors wrote the final paper. OOB is guarantor.

Funding: No additional funding.

Competing interests: None declared.

Ethical approval: Not needed.

1 International Campaign to Ban Landmines. *Landmine monitor report 2003*. New York: Human Rights Watch, 2002.

2 International Committee of the Red Cross Mine Action Program. *Semi-annual report (January-June 2002)*. Kabul: International Committee of the Red Cross, 2002.

3 Human Rights Watch. *Landmine use in Afghanistan*. New York: Human Rights Watch, 2001. www.hrw.org/background/arms/landmines-bck1011.htm (accessed 22 Dec 2004).

4 Gall C. Farmers in Afghanistan face fields of bombs. *New York Times* 2002 Oct 9:A15.

(Accepted 13 December 2004)

doi: 10.1136/bmj.38337.361782.82

Endpiece

Insolent students, 1584

Marc-Antonio Muret, the eminent professor of rhetoric at the university of Rome, requested that he be relieved of his academic post for several reasons, one being the "perpetual insolence of the students"; in addition noting that too many students carried daggers, he said he was forced to end a Saturday lecture when a student threw a dagger at him "with the manifest peril of putting out an eye."

Klestinec C.

A history of anatomy theatres in
sixteenth century Padua.
J Hist Med 2004;59:391

Jeremy Hugh Baron,
honorary professorial lecturer,
Mount Sinai School of Medicine, New York