

Hepatitis A and hepatitis A virus/HIV coinfection in men who have sex with men, Warsaw, Poland, September 2008 to September 2009

M M Dabrowska (m.dabrowska@op.pl)¹, K Nazzal², A Wiercinska-Drapalo⁴

1. Department of Hepatology and Acquired Immunodeficiencies, Warsaw Medical University, Warsaw, Poland
2. Hospital for Infectious Diseases, Warsaw, Poland

Citation style for this article:

Dabrowska MM, Nazzal K, Wiercinska-Drapalo A. Hepatitis A and hepatitis A virus/HIV coinfection in men who have sex with men, Warsaw, Poland, September 2008 to September 2009.

Euro Surveill. 2011;16(34):pii=19950. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19950>

Article published on 25 August 2011

We describe the epidemiology and characteristics of hepatitis A among men who have sex with men (MSM) who had been hospitalised due to the infection in Warsaw, Poland, from September 2008 to September 2009. A total of 50 men were analysed; their median age was 28 years (range: 17–43). None had travelled to hepatitis A-endemic regions during the six months before hospitalisation nor had they been vaccinated against hepatitis A. Of the 50 men, 40 had been tested before hospitalisation or on admission for the presence of anti-HIV antibodies: six were coinfecting with HIV. The six HIV-positive MSM were significantly older than those who were HIV negative – median age: 37 years (range: 26–43) versus 28 years (range: 17–43); $p=0.02$. No difference in disease severity or the duration of hospitalisation was observed, however, between the two groups. Our study underlines the need to screen MSM for hepatitis A and to vaccinate them against hepatitis A. Given the ages of the MSM in our study, we recommend that this be carried out in Poland when the MSM are aged 20–35 years. This should apply not only to MSM with multiple casual partners but also to those in monogamous relationships.

Introduction

Hepatitis A virus (HAV) is one of the most common causes of acute hepatitis worldwide [1,2]. This usually self-limiting disease does not lead to chronic hepatitis [3], but older age, excessive alcohol intake and chronic or simultaneous infection with hepatitis B virus (HBV) may sometimes increase the severity of hepatitis A [4]. Faecal-oral transmission is the most common route; however, transmission by unprotected oral or anal sex among men who have sex with men (MSM) may also occur [5].

In Europe, during the last century, the largest hepatitis A outbreaks occurred during the two world wars [6]. However, in developed countries today, outbreaks are sporadic and have been limited to certain regions or cities, as in the hepatitis A-related food-borne outbreaks in Austria and southern Italy in 2008 [7,8].

Notification of hepatitis A is mandatory in Poland. Physicians from infectious diseases units who confirm the infection by detection of anti-HAV IgM antibodies in the blood of a person with clinical symptoms or family physicians who suspect the infection on the basis of clinical symptoms or by laboratory findings of acute hepatitis are obliged to report the case, using a specific questionnaire, to the National Institute of Public Health, which is responsible for surveillance in Poland. As there is no screening for hepatitis A in the country, only symptomatic patients who are hospitalised are offered an anti-HAV IgM test.

All cases of viral hepatitis had been registered in Poland since 1951, but it is only since 1997 that hepatitis A cases have been reported separately. Before 1997, the incidence of hepatitis A in Poland was high, ranging from 155 per 100,000 population to 196 per 100,000 population [9]. Due to progressive improvements in working and living conditions in the country – particularly the gradual introduction of sanitation and hygiene measures – the incidence of hepatitis A decreased considerably in the years following 1997. The incidence in 1997 was 10.47 per 100,000 population; in 1998, it was 5.20 per 100,000 population and in 2005, 1.18 per 100,000 population [9].

In 2008 and 2009, an unexpected increase in the number of reported hepatitis A cases was seen. A total of 208 cases were detected in 2008 and 652 in 2009, whereas the number in 2007 was 36 (data collected by the National Institute of Public Health). In 2008 and 2009, some of the cases were refugees ($n=76$) [10] and some had travelled to North Africa ($n=14$) (unpublished data). However, this does not account for the almost six-fold and more than 18-fold increase in the number of hepatitis A cases reported in 2008 and 2009, respectively, compared with 2007. The total case numbers in 2008 and 2009 led to an incidence of 0.55 per 100,000 population and 1.72 per 100,000 population, respectively, while in 2007 it was 0.09 per 100,000 population and in 2006, 0.29 per 100,000 population.

In 2006 and 2007, around 50% of the reported hepatitis A cases in Poland were linked to recent travel (during the last six months) to hepatitis A-endemic areas, such as in Africa (Egypt, Ghana and Tunisia), South America (Brazil, Peru and Mexico), Asia (India, Nepal and Indonesia) and Europe (Turkey, Russia and Ukraine). They were reported in late summer or autumn: in 2006, 45% of cases were travel related; in 2007, it was 53% [11].

In Poland, anti-hepatitis A vaccination is not obligatory for children or adults (and must be paid for by individuals). The vaccine is generally only proposed to people before travel to a hepatitis A-endemic region.

Presently in Poland, hepatitis A is a disease of adolescents and young adults (aged 20–30 years). In the 1970s, the highest incidence was observed in children aged 7–9 years [9]. However, after 1997, the highest incidence was in adults aged 25–29 years (1.12 per 100,000 population in 2008). The incidence in males (all ages) in 2008 was 0.68 per 100,000 population; in females (all ages), it was 0.42 per 100,000 population. It is of note that the most affected group has become men between 25 and 29 years old. In 2008, the incidence in this group ranged from 0.50 per 100,000 population in men aged 40–44 years to 1.73 per 100,000 population in men aged 25–29 years and this trend seems to have continued in 2009 [10,12,13].

Hepatitis A in MSM has been reported in Europe. For instance, in a hepatitis A outbreak in Denmark in 2004, the incidence rate in Copenhagen was 23 per 100,000 men above 17 years old; the median age of the men was 41 years (range: 19–73). Of the 107 men affected, 68 (64%) were reported to be MSM [14]. Similarly, in Northern Ireland, between October 2008 and July 2009, of the 38 cases in a hepatitis A outbreak, 36 were men, whose median age was 29 years. Of the 36 men, 26 were MSM [15]. Unfortunately, data on the incidence of hepatitis A in MSM in Poland are sparse, as information about sexual orientation is not routinely collected when physicians report cases of hepatitis A through the surveillance system.

The objective of our study was to describe the epidemiology of hepatitis A among MSM in Warsaw, the capital, which has the largest number of MSM in Poland. At the end of April 2011, 14,474 people in the country were registered with HIV infection: 78% (n=11,289) were male. More than 50% (about 7,300) of all HIV-infected persons were MSM [16]. We also present the characteristics (age, travel history and possible route of transmission) of MSM with HAV/HIV coinfection.

Methods

We included men who identified themselves as MSM who had been hospitalised in Warsaw's Hospital for Infectious Diseases due to clinical manifestations of hepatitis A (described below) and elevated serum levels of liver enzymes and bilirubin (tested in the Department of Hepatology and Acquired Immunodeficiencies,

Warsaw Medical University) during September 2008 to September 2009.

According to the national case definition, a case of hepatitis A was defined either as a person with clinical symptoms of acute hepatitis such as jaundice, fever (temperature above 38°C), abdominal pain, loss of appetite, malaise, nausea and vomiting, and with elevated serum levels of liver enzymes in standard laboratory tests, and with possible faecal-oral transmission of hepatitis A in anamnesis (e.g. eating fast food, travel to hepatitis A-endemic regions or contact with a person with jaundice), or as a person with clinical symptoms, elevated serum levels of liver enzymes and who tested positive for anti-HAV IgM.

The clinical diagnosis of hepatitis A in all studied MSM was confirmed by detection of anti-HAV IgM antibodies in serum, using the Vitros 3600 immunoassay system, at the time of admission to the hospital [17]. All 50 hepatitis A positive MSM were also tested on admission for HBV (by detection of hepatitis B surface antigen (HBsAg) and anti-HBV IgM), hepatitis C virus (HCV, by detection of anti-HCV antibody and HCV RNA), cytomegalovirus (CMV, by detection anti-CMV IgM) and Epstein–Barr virus (EBV, by detection of anti-EBV IgM).

Liver function tests – measuring serum levels of aminotransferases, alanine phosphatase, gamma-glutamyltransferase activity and total bilirubin using the Vitros 3600 immunoassay system – were performed for every MSM in the study. Each patient was tested several times during their hospitalisation: for all patients, the levels on admission were the highest observed.

Questions about possible exposure to HAV (e.g. travel abroad, food consumption and (non-sexual) contact with a person with symptoms of hepatitis A) and on sexual orientation were asked on hospital admission, as a part of the clinical examination.

The non-parametric Mann–Whitney U test was used to compare the studied groups (HIV-positive and HIV-negative MSM with hepatitis A). A p value of less than 0.05 was considered statistically significant. Statistical analyses were performed using Statistica 8.0 (StatSoft Inc., United States).

For this retrospective observational study, we needed no ethical approval because all laboratory tests carried out were part of the routine management of acute hepatitis.

Results

A total of 50 MSM hospitalised due to hepatitis A were included in the study. None had travelled to known hepatitis A-endemic regions in the world during the six months before hospitalisation. In their anamneses, all mentioned one or more episodes of risky sexual intercourse (e.g. with multiple casual partners and/

or without a condom) during the six months before hospitalisation.

The median age of the 50 MSM was 28 years (range: 17–43). The six HAV/HIV-coinfected patients were significantly older (median age: 37 years; range: 26–43) than the 34 HIV-negative men (median age: 28 years; range: 17–43); $p=0.02$. However, we saw no difference in the level of liver enzymes and of bilirubin, or in the duration of hospitalisation between both groups (Table).

For 13 of the MSM, their regular sexual partner had been diagnosed as being infected with HAV during the six months before the MSM in the study had been hospitalised. None of the 50 MSM or their regular partners had medical records of having been vaccinated against hepatitis A. No data on hepatitis A status (vaccination or past infection) were available for their casual partners.

All 50 MSM were tested for HBV and hepatitis C virus on admission: none had an acute or chronic infection. However, two of the men had record of an acute hepatitis B infection in the past.

The CD4 cell count of the six HIV-positive MSM, determined when hepatitis A had been diagnosed, was low: the median was $300/\mu\text{L}$ (range: $106\text{--}406/\mu\text{L}$).

In all six cases of HAV/HIV coinfection, the men had had several episodes of unprotected oral and/or anal sex with their partners during the six months before hospitalisation.

All patients obtained the same treatment for their symptoms of hepatitis A (e.g. replacement of fluids lost as a result of vomiting or diarrhoea) and all made a full recovery.

Discussion and conclusion

Data from the European Centre for Disease Prevention and Control (ECDC) concerning hepatitis A in Europe in 2008 showed the predominance of male cases in all age groups under 65 years of age (the highest being in age groups 0–4 years and 15–44 years) [18].

As described earlier, hepatitis A in MSM has been reported in Europe [14,15]. In our study, none of the MSM had been vaccinated against hepatitis A. Although our study was small, the level of vaccination was much lower than that described in Diamond et al.'s study of MSM who attended public venues in King County, Washington, United States: of the MSM who reported that they had received at least one dosis of HAV vaccine and had HAV IgG upon serologic testing, only 15% had been vaccinated against HAV [19].

The route of HAV transmission was difficult to determine for the patients in our study because of the lack of blood samples from their sexual partners (to analyse if they were infected with the same HAV strain). However, in 13 of the MSM, we suspect that their infection had occurred as a result of oral and/or anal sex, because their regular sexual partner had been infected with HAV during the previous six months; however, there is no molecular evidence to support this. Unfortunately, none of the MSM had been vaccinated against hepatitis A after their partners had been diagnosed with the infection.

The most important aspect of our study is in providing data about hepatitis A in MSM in Warsaw: such data are scarce in Poland as data on sexual orientation are not routinely collected by the national surveillance system for cases of hepatitis A. We also identified six cases of HAV/HIV coinfection in the studied MSM. Given their low CD4 cell count, it is clear that in all six coinfecting men, their HIV infection was not controlled.

TABLE

Duration of hospitalisation and laboratory results for liver function tests^a for HIV-positive (n=6) and HIV-negative (n=34) men who have sex with men with hepatitis A, Warsaw, Poland, September 2008–September 2009

Variable	HIV-positive MSM	HIV-negative MSM	P value
	Median (range)	Median (range)	
Number of days hospitalised	12 (5–34)	10 (4–17)	0.43
AST (IU/mL)	929 (222–2,124)	1,730 (157–6,338)	0.18
ALT (IU/mL)	2,368 (600–5,000)	2,943 (717–7,898)	0.29
ALP (IU/mL)	182 (76–241)	215 (74–401)	0.47
GGTP (IU/mL)	418 (125–999)	273 (122–542)	0.40
Total bilirubin ($\mu\text{M/L}$)	101 (72–168)	109 (28–301)	0.51
Number of MSM	6	34	–

ALT: alanine aminotransferase; ALP: alanine phosphatase; AST: aspartate aminotransferase; GGTP: gamma-glutamyl transferase; IU: international units; MSM: men who have sex with men.

^a On admission to hospital, peak levels.

Our study had some important limitations, such as the small number of MSM and the inclusion of hospitalised cases only. Moreover, the length of hospitalisation as a measure of disease severity may not be ideal, given the subjectivity involved in determining how long a patient stays in hospital. Unfortunately, we could not compare the results of our study of MSM in Warsaw with those from other regions of the country because data on MSM in Poland are sparse. Thus the results of our study cannot be generalised to the rest of the country. Despite its limitations, however, to the best of our knowledge, this is the first study in Poland to look at hepatitis A and sexual orientation.

In conclusion, given incidence of hepatitis A in MSM in Poland and given that MSM are a particular risk group, we underline the need for hepatitis A screening and anti-HAV vaccination for every MSM. Given the ages of the MSM in our study, we recommend that this be carried out in Poland when the MSM are aged 20–35 years. This is important not only for those with multiple casual partners but also for those in monogamous relationships.

References

1. Feinstone SM, Kapikian AZ, Purcell RH. Hepatitis A: detection by immune electron microscopy of a virus like antigen associated with acute illness. *Science*. 1973;182:1026-8.
2. Hendrickx G, Van Herck K, Vorsters A, Wiersma S, Shapiro C, Andrus JK, et al. Has the time come to control hepatitis A globally? Matching prevention to the changing epidemiology. *J Viral Hepat*. 2008;15 Suppl 2:1-15.
3. Jeong SH, Lee HS. Hepatitis A: clinical manifestations and management. *Intervirol*. 2010;53(1):15-9.
4. Kim JI, Kim YS, Jung YK, Kwon OS, Kim YS, Ku YS, et al. Factors influencing the severity of acute viral hepatitis A. *Korean J Hepatol*. 2010;16(3):295-300.
5. Bouvet E. Sexual practices and transmission of HAV and HCV. *Euro Surveill*. 2005;10(5):pii=534. Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=534>
6. Cuthbert JA. Hepatitis A: old and new. *Clin Microbiol Rev*. 2001;14(1):38-58.
7. Pontrelli G, Boccia D, Di Renzi M, Massari M, Giugliano F, Celentano LP, et al. Epidemiological and virological characterization of a large community-wide outbreak of hepatitis A in southern Italy. *Epidemiol Infect*. 2008;136(8):1027-34.
8. Schmid D, Fretz R, Buchner G, König C, Perner H, Sollak R, et al. Foodborne outbreak of hepatitis A, November 2007-January 2008, Austria. *Eur J Clin Microbiol Infect Dis*. 2009;28(4):385-91.
9. Janaszek-Seydlitz W, Bucholc B., Wiatrzyk A. [Prevalence of anti-HAV antibodies in Warsaw population]. *Przegl Epidemiol*. 2007;61(4):675-82. Polish.
10. Chief Sanitary Inspectorate. Stan sanitarny kraju w 2009 roku [Country sanitary state in 2009]. Warsaw: Chief Sanitary Inspectorate. [Accessed 18 Aug 2011]. Polish. Available from [http://www.gis.gov.pl/userfiles/file/Stan sanitarny kraju w 2009 roku.pdf](http://www.gis.gov.pl/userfiles/file/Stan_sanitarny_kraju_w_2009_roku.pdf)
11. Baumann A. [Hepatitis A in Poland in the years 2006-2007]. *Przegl Epidemiol*. 2009;63(2):241-4. Polish.
12. National Institute of Public Health. Choroby zakaźne i zatrucia w polsce w 2008 roku [Infectious diseases and poisonings in Poland in 2008]. Warsaw: National Institute of Public Health. Polish. Available from http://www.pzh.gov.pl/oldpage/epimeld/2008/Ch_2008.pdf
13. National Institute of Public Health. Choroby zakaźne i zatrucia w polsce w 2009 roku [Infectious diseases and poisonings in Poland in 2009]. Warsaw: National Institute of Public Health. Polish. Available from http://www.pzh.gov.pl/oldpage/epimeld/2009/Ch_2009.pdf
14. Mazick A, Howitz M, Rex S, Jensen IP, Weis N, Katzenstein TL, et al. Hepatitis A outbreak among MSM linked to casual sex and gay saunas in Copenhagen, Denmark. *Euro Surveill*. 2005;10(5):pii=536. Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=536>
15. Sfetcu O, Irvine N, Ngui SL, Emerson C, McCaughey C, Donaghy P. Hepatitis A outbreak predominantly affecting men who have sex with men in Northern Ireland, October 2008 to July 2009. *Euro Surveill*. 2011;16(9):pii=19808. Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19808>
16. National AIDS Centre. Sytuacja epidemiologiczna w polsce na koniec 2009 r [The epidemiological situation in Poland at the end of 2009]. Warsaw: National AIDS Centre. [Accessed 18 Aug 2011]. Polish. Available from: [http://www.aids.gov.pl/files/epidemiologia/Sytuacja_epidemiologiczna_w_polsce_na_koniec_2009_r\(1\).pdf](http://www.aids.gov.pl/files/epidemiologia/Sytuacja_epidemiologiczna_w_polsce_na_koniec_2009_r(1).pdf)
17. Ortho Clinical Diagnostics, VITROS 3600 Immunodiagnostic System (Immunoassay 2011). CAP TODAY. An interactive guide to laboratory software and instrumentation. Accessed: 23th August 2011. Available from: <http://www.captodayonline.com/productguides/companies-instrument/automated-immunoassay-analyzers-june-2011/ortho-clinical-diagnostics/ortho-clinical-diagnostics-vitros-3600-immunodiagnostic-system-immunoassay-analyzers-june-2011.html>
18. European Centre for Disease Prevention and Control (ECDC). Annual epidemiological on communicable diseases in Europe 2010. Stockholm: ECDC; 2010. Available from: http://ecdc.europa.eu/en/publications/publications/1011_SUR_Annual_Epidemiological_Report_on_Communicable_Diseases_in_Europe.pdf
19. Diamond C, Thiede H, Perdue T, Secura GM, Valleroy L, Mackellar D, et al. Viral hepatitis among young men who have sex with men : prevalence of infection, risk behaviors, and vaccination. *Sex Transm Dis*. 2003;30(5):425-32.