

CARTAS AL EDITOR

An outbreak of influenza among physicians during the first wave of Mexico City's 2009 H1N1 epidemic

To the editor: Healthcare workers (HCWs) are of major concern during influenza epidemics.^{1,2} The H1N1 epidemic initially posed an enormous burden on hospital day work. In the current report we present an outbreak of Pandemic influenza A (H1N1) 2009 among physicians, the majority of them fellows, during Mexico City's first wave between April and May, 2009.

The Instituto Nacional de Cancerología (INCan) is a 120-bed, teaching cancer hospital of 23 000 constructed m². A total of 170 000 medical visits are provided annually (800 per day) and >3 000 people enter the hospital each day. One hundred and seventeen post-graduate students (76 fellows) were being trained in 2009 in 14 different specialties. Within the medical facility, there are 33 resident dormitories, 12 to 15 m² each, for 76 fellows. Sixty percent of these live at the hospital dormitories (2 to 6 per room).

Outbreak description: Along with the Mexico City influenza epidemics during April and May, 2009, an unusually high number of oncology fellows consulted because of Influenza-like illness (ILI) in a 13 day period, starting late April. Except one, the sick physicians did not recognize to have been in contact with patients with ILI or confirmed influenza, they neither had household contacts. They did report

being in close contact with other physicians (fellows and staff) who were suffering from ILI. An outbreak investigation was conducted.

Case definition: A suspected case of influenza was defined as any physician working at INCan with acute febrile respiratory illness (defined as recent onset of at least two of the following: rhinorrhea or nasal congestion, sore throat or cough), headache and severe malaise between April 20 and May 10, 2009. A nasopharyngeal swab was obtained and tested by Rt-PCR.^{3,4} Clinical and epidemiological data were collected.

Results: During the 21 days study period, 101 people consulted because of acute respiratory symptoms, 24 (23.7%) physicians (20 fellows and four staff members). Eleven (45.8%) met the ILI case definition (nine fellows and two staff members); 10 were tested for influenza by Rt-PCR. Six fellows were in the Oncology Program, one in Gynecology, one in Pain Clinic, and one in Hematology. All fellows (except the one in Hematology) had contact with each other, either at the dormitories (two lived at the same dormitory), during rounds, and/or on the weekend shift. Three had close contact with the staff Oncologist (2nd case), because they were consulting in the same medical office. The hematologist, non-related to the remainder of the group, examined a confirmed case of influenza A (H1N1).

The rate of ILI in this cohort of physicians was 10.9%. Five (50.0%) were positive for influenza A (H1N1) by Rt-PCR, one to influenza A (10.0%), one

(10.0%) to influenza B, and two (20.0%) were negative. One sample (10.0%) was inappropriate for testing. The eleven physicians independently of the Rt-PCR result were absent from work. Mean case age was 30.7 ± 3.3 years; none had risk factors for influenza A (H1N1). The majority of infections were moderate, except for those that required hospital admittance (n=3): one with high fever, dyspnea, and severe malaise, and two with diarrhea, dehydration, high fever, and severe malaise. All cases except one were treated with oseltamivir with a good clinical response. No severe forms of the disease or complications related with the influenza were observed. All sought medical attention within 1 to 7 days of initial symptoms.

Comment: Early in the first wave of 2009 Pandemic influenza we observed an unprecedented high number of fellows and staff physicians with ILI in our institution. Most of the sick physicians were young and healthy, and although they might have had contact with asymptomatic persons at the hospital or within the community, in the vast majority of cases the only known contact with the influenza virus were other colleagues inside the health-care facility.

In this outbreak it's difficult to establish a cause-relationship; we were unable to sample all people with respiratory symptoms, and pandemic H1N1 (5 cases), seasonal influenza A (1 case), influenza B and negative results (2 cases) were inter-related. Influenza A H1N1 has

been more frequent in young people, as was the case of the physicians seen. Most of the cases were inter-related, as they shared the medical office, dorms or the weekend shift, and they all occurred in a small time frame. To note, is that cases seen on April 28th, all were on the same weekend shift, and both fellows from the Oncology program had been in close contact with case 2. The clinical picture of these young physicians was highly suggestive of Pandemic 2009 H1N1. Considering the infection timeline, the clinical picture and the demographic data, it's very suggestive that a hospital outbreak was occurring, with an unusual pattern of transmission.

The rate of infection in this group of physicians was 10.9%, greater than the 4% reported by the Centers for Disease Control (CDC) in May 2009,⁵ but similar to the findings reported by Pérez-Padilla *et. al.*⁶ at a respiratory referral center, and Luliano *et.al.*⁷ in a large university in Delaware between April 26 and May 2, 2009.

It has been recognized that influenza can spread extremely rapidly within closed, crowded institutions, such as our hospital.¹ These findings support the importance of good infection-control practices that are universally focused on reducing the transmission of large droplets and small particles. Based on the timeline and known incubation period, it is possible that Pandemic H1N1-2009 was introduced into the hospital with limited initial spread, and that then an accelerated spread with peak in transmission occurred with the first community peak in Mexico City. If this is the case, it supports the concern that crowding and "social gatherings" may accelerate transmission of the virus, even inside a small community, as was the case of our fellows.^{7,8} The outbreak resulted in increased absenteeism, impaired medical capacity, and increased healthcare utilization.

Although the Infection Control Committee alerted early to healthcare workers at the Institution, on April 20 and 24, the outbreak among physicians was only contained after the first few cases

had occurred and focused discussion with fellows was carried out.

This report is a brief description of Pandemic H1N1 2009 in physicians, who are key to rapid and efficient healthcare delivery during outbreaks and disasters. Crowded conditions and long working hours in teaching hospitals may increase exposure to influenza A H1N1 in medical fellows, and might have been underestimated.

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Picadura de alacrán y su relación con la enfermedad renal crónica infantil

Señor editor: En el año 2008 se registraron en México 271 440 picaduras de alacrán (PA); de ellas, 1 933 fueron en Aguascalientes.¹ El veneno de alacrán puede producir una respuesta inflamatoria sistémica con choque séptico, falla orgánica múltiple y muerte.² Es conocida la asociación entre la PA y la insuficiencia renal aguda, sin embargo, hasta donde sabemos no se ha descrito su asociación a enfermedad renal crónica (ERC). En el municipio de Calvillo, Aguascalientes, México, existe una alta incidencia de alacranismo, y una elevada prevalencia de ERC en escolares (7 580/millón de habitantes),³ por lo que decidimos determinar si la PA se asocia a la ERC en escolares.

Realizamos un estudio de casos y controles de enero de 2007 a febrero de 2008 en el municipio de Calvillo e incluimos al total de pacientes de 4 a 18 años de edad con ERC registrados en Aguascalientes, previo consentimiento informado. Aplicamos cuestionarios sobre hábitos, características de vivienda y escuela, antecedentes de PA y de factores de riesgo para ERC. Se determinó creatinina sérica, talla, examen general de orina y microalbuminuria, con cálculo de la fórmula de Schwartz y ultrasonido renal (UR). A aquellos con sospecha de glomerulopatías se les realizó además proteinuria de 24 h, determinación en sangre de C₃, C₄, IgA, IgG e IgM y biopsia renal; a aquellos con uropatía obstructiva, uretrocistograma, gamagrama renal funcional con MAG3; y a los portadores de hipoplasia renal congénita, uretrocistograma, y biopsia renal. Por cada caso de ERC incluimos a dos controles sanos.

El análisis se hizo mediante ji cuadrada, *t* de Student, y razón de momios

Cuadro I
CARACTERÍSTICAS CLÍNICAS Y TIEMPO DE RESIDENCIA
DE LOS NIÑOS ESTUDIADOS. AGUASCALIENTES, MÉXICO 2007-2008

Variable	Caso (71)	Control (168)	p
Edad (años)	13±4	11±4	0.001*
Talla (cm)	153±52	141±28	0.050
Peso (kg)	41±14	41±17	1
Tiempo de residencia (años)	15±8	11±6	0.00022*

Valores de tabla expresados en promedio ± DE (desviación estándar)
 * Se consideró con significancia estadística $p < 0.05$

con IC 95% mediante el programa Epi-Info v6.0 (CDC & OMS).

Estudiamos 239 niños, 71 casos y 168 controles (cuadro I); la relación masculino:femenino fue de 0.9:1. El antecedente de PA fue más frecuente en los casos que en los controles [40.8 vs 23.8%, respectivamente, RM 2.25 (1.24-4.07)].

Sabemos que la PA se asocia a la insuficiencia renal aguda (IRA) reversible, pero no a la ERC.⁴ En nuestro estudio el antecedente de PA sí se asoció a ERC. Así, se ha descrito que la lesión renal secundaria a PA puede progresar a daño renal severo.⁴ La falla renal se desarrolla días después de la picadura; Malhotra y colaboradores⁴ encontraron proliferación mesangial renal, cambios tubulares e inflamación intersticial después de la PA. También, Derakhshan y colaboradores⁵ observaron que de 1 358 niños con nefropatía, en 99 (7.3%) hubo IRA, de los cuales seis casos tuvieron antecedente de PA, mientras aquellos con insuficiencia renal crónica (IRC) no lo tenían. El veneno de alacrán contiene hemolisinas, endotelisi-

nas y neurotoxinas, capaces de producir el síndrome urémico hemolítico (SUH).⁴

El SUH se caracteriza por anemia hemolítica microangiopática, trombocitopenia y falla renal.⁶ Zambrano y colaboradores⁷ observaron que 12% de pacientes con SUH desarrollaron ERC. Por otro lado, Grimaldi y colaboradores⁸ encontraron que de 710 casos con IRC, la etiología en 14% fue el SUH. Lo anterior nos permite especular que la PA produce un SUH subdiagnosticado, y ésta, a su vez, puede desencadenar la ERC en nuestra población. Esta hipótesis requiere ser confirmada mediante más estudios.

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