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Short Communication

An acute febrile outbreak in a refugee community of an Italian asylum seeker center: lessons learned



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ABSTRACT

Objectives: The management of infectious outbreaks in closed settings represents an important public health issue. An outbreak of acute febrile syndrome affecting 22 refugees resident at the Asylum Seekers Centre of Castelnuovo di Porto in Rome has been reported, and the preventive and control measures adopted have been described as an example of public health safety.

Methods: Pharyngeal swab and whole-blood samples were collected from 22 cases observed and analyzed for standard bacterial cultures and respiratory and herpesviruses by qualitative CLART PneumoVir2 and Entherpex microarray.

Results: A possible respiratory-transmitted etiology and a concomitant reactivation of multiple herpesviruses have been evidenced. The epidemiological investigation showed that the spread of the epidemic was promoted because patients were hosted in neighboring rooms or in the same room, facilitating the rapid spread of infectious disease.

Conclusions: The potential way of transmission was supposed, and preventive measures for infection control were adopted. The measures adopted are an example of best practice for outbreak management, and the microbiological surveillance is recommended for public health improvement.

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The debate on migrant population health condition at arrival in the hosting country is an actual topic. The status of ‘healthy migrant’ depends on different factors such as the countries of origin, the access to healthcare service, or the socio-economic status.¹

Refugees have to face long heavy journeys deteriorating their initial good status of health for psychological or post-traumatic stress.² Moreover, refugees can acquire levels of health similar to those of the host population, consequently leading to environmental and behavioral changes.^{1–3}

Given that a large number of migrants, on their arrival, are housed at the asylum seeker centers (ASCs), where subjects live in strict contact with each other for a variable period waiting to obtain the necessary documents to have refugee status, the infection control of those enclaves is recommended to avoid outbreak development.^{1–4}

This study provides a picture of an outbreak of acute pharyngitis–febrile syndrome that started in May 2017 in the Asylum Seekers Centre of Castelnuovo di Porto (Rome, Italy). The search for the potential pathogen, the clinical evaluation of the patients, the potential route of transmission, and the strategies for containing the outbreak have been described.

At this aim, the clinical data were obtained by the Internal Healthcare Facility (IHF) archive of the ASC. The IHF team, including specialists in internal medicine and infectious diseases, evaluated all patients with suspicious diseases and took care of public health issues within the ASC. Pharyngeal swab and whole-blood samples were collected from all patients with a fever higher than 38°C along with one or more of the following symptoms: headache, pharyngeal pain, arthralgia, rhinorrhea, and/or nasal congestion to identify the causal pathogen.

Automated hematology analyzer Sysmex XN3000 was used for the blood cell count (Dasit Group S.p.A, Italy). Pharyngeal swab samples were analyzed for standard bacterial cultures and for the following respiratory viruses: adenovirus, bocavirus 229E, enterovirus, influenza type A (H2N2, H1N1, and H1N1/2009), influenza type B, influenza type C, metapneumovirus (A/B), parainfluenza (1–4), rhinovirus, respiratory syncytial virus (RSV) (A/B), coronavirus OC43 by qualitative CLART PneumoVir2 microarray (Genomica, Italy). Moreover, the presence of human herpesviruses cytomegalovirus (CMV), varicella zoster virus (VZV), herpes simplex virus (HSV) (1/2), human herpesviruses (HHV6, HHV7, and HHV8) was evaluated by qualitative CLART Entherpex microarray (Genomica, Italy). Both the assays (PneumoVir2 and Entherpex) are based on a multiple polymerase chain reaction system able to detect respiratory or neurotropic pathogens simultaneously.

From May 27th to June 12th 2017, 22 cases with symptoms of prodromal rhinorrhea and nasal congestion followed by fever (higher than 38°C), headache, pharyngeal pain while swallowing, and arthralgia presented at the IHF. The median age of the cases was 23 years old, mostly men coming from Pakistan, Bangladesh, and Nigeria (Table 1). All of them were in healthy status at their arrival at ASCs from 17th February to 26th May 2017.

The index case was a 28-year-old man coming from Mali, who arrived at the ASC 17 days before. Two days later, a 26-year-old Nigerian man presented the same symptoms. Furthermore, 20 people complained the same disease with

Table 1 – Epidemiological and clinical characteristics of the 22 refugees described in the outbreak and microorganisms identified by CLART Entherpex microarray.

Variables	N (%) patients
Age (years)	
Mean	22
95% CI for the media	17–26
Median	23
Interquartile range	18–27
Gender	
Male	20 (91)
Female	2 (9)
Nationality	
Pakistan	5 (23)
Bangladesh	4 (18)
Nigeria	4 (18)
Mali	3 (14)
Ivory Coast	3 (14)
Guinea	2 (9)
Palestine	1 (5)
Date of arrival	From 17th February to 26th May 2017
Date of symptom appearance	From 27th May to 12th June 2017
Symptoms	
Mean body temperature (°C)	38
Headache	18 (82)
Rhinorrhea	10 (45)
Arthralgia	10 (45)
Pharyngitis	10 (45)
Pharyngeal swabs	
All positive for respiratory pathogens	12 (54)
Influenza B	8 (36)
Bacteria (<i>Streptococcus pneumoniae</i> 2, <i>Haemophilus influenzae</i> 1, <i>H. influenzae</i> + <i>S. pneumoniae</i> 1)	4 (18)
Pharyngeal swabs	
HHV7	7 (32)
HHV6	2 (9)
EBV + HHV7	7 (32)
EBV + HHV6 + HHV7	1 (4.5)
HHV6 + HHV7	1 (4.5)
HSV-1+HHV7	2 (9)
HSV-1+EBV	2 (9)
Blood samples	
EBV + HHV7	5 (23)
HHV6	1 (4.5)
HHV6 + HHV7	1 (4.5)
Negative	15 (68)

CI, confidence interval.

different clinical evolution until June 12th. A graphic representation of the number of cases registered during the outbreak period is reported in Fig. 1. The physical examination showed mean body temperature of 38.6°C, mean oxygen saturation of 98% on room air and tachycardia. The oral cavity inspection showed a hyperemic pharynx without exudate, while lungs, abdomen, and neurological examination was normal. The large and small joints showed no signs of local inflammation, despite being painful. A symptomatic therapy with paracetamol or non-steroidal anti-inflammatory drugs

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