

Transmission of infectious diseases from internationally adopted children to their adoptive families

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Abstract

Internationally adopted children may suffer from different pathologies, including infectious diseases contracted in the country of origin. We evaluated the frequency of infectious diseases that may disseminate from adoptees to adoptive families on their arrival in France. All children who attended the clinic for international adoption in Clermont-Ferrand from January 2009 through to December 2011 were eligible for inclusion in the study. Standardized medical records dedicated to international adoption were retrospectively reviewed for demographic data, clinical diagnosis, and biological and radiological results. Data were completed by phone interviews with adoptive families after informed consent. One hundred and forty-two medical records were retrospectively reviewed and 86% of families agreed to be interviewed. One hundred and seventy-one potentially transmissible infections were diagnosed in 142 children, 12% ($n = 20$) of which were transmitted to adoptive families. Most of these infections were benign and transmission was restricted to the close family. Tinea was diagnosed in 44 adoptees and transmitted in 15 cases. Pantone Valentine leukocidin producing methicillin-sensitive *S. aureus* (MSSA) was transmitted to an adoptive father who required hospitalization for bursitis. Transmission also occurred for CMV ($n = 1$), hepatitis A ($n = 1$), giardiasis ($n = 1$), scabies ($n = 1$), *Moluscum* ($n = 2$) and pediculosis ($n = 2$). Two cases of chronic hepatitis B and latent tuberculosis were diagnosed without subsequent transmission. In conclusion, infectious diseases are common in internationally adopted children and should be detected shortly after arrival to avoid transmission.

Keywords: Adoptee, infectious diseases transmission, *Staphylococcus aureus*, tinea, travel medicine

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Introduction

France is the third country for international adoption after Italy and the USA [1]. Currently, one child out of every 100 in

France is adopted, and 80% of adoptions are international [2]. In 2010, French families adopted 3504 children from 67 different countries, mainly Haiti (28%), Vietnam (13%), Colombia (11%), Ethiopia (10%) and China (3%) [2]. Most of the adoptees are entrusted to international adoption for social and economical reasons. They remain in institutions for months or years during the time of the administrative process of adoption. In the institution, many adoptees suffer from different illnesses that reflect the socio-economical conditions of their families. These include malnutrition, previous exposure to drugs and alcohol, abuse or infectious diseases such as tuberculosis. Children would receive appropriate care in an institution but may suffer from

crowding-related infectious diseases such as scabies, tinea or hepatitis. In France, most regions have a medical structure called COCA (Center for Orientation and Counsel in Adoption) that is available for adoptive families and where children are screened shortly after arrival for viral, parasitic and bacterial infections [3–7]. Some of these infections, including hepatitis A and B (HAV, HAB), scabies, tuberculosis or tinea, may cause outbreaks by spreading from the adoptees to their adoptive family or to communities such as schools [8–10].

Based on the experience of our clinic for international adoptive families, we sought to evaluate in adoptees from various countries the frequency of transmissible infectious diseases that may be involved in outbreaks.

Methods

All children who attended the clinic for international adoption in Clermont-Ferrand from January 2009 through to December 2011 were eligible for the study. Standardized medical records dedicated to international adoption were retrospectively reviewed for demographic data, clinical diagnosis, and biological and radiological results. All children had blood tests and a chest X-Ray as recommended by the French Agency of Adoption [11]. An information letter was mailed to the eligible families and a phone contact was made by a physician 1 month later. After oral consent, families were interviewed to double check and retrieve missing data. The following information of interest was recorded: demographic data, date of arrival and clinic attendance, school attendance, the diagnosis and outcome of infectious diseases with a potential risk of transmission and spread of an infectious disease from adoptee to another person, and travel preparation of the adoptive family, including vaccines and malaria prophylaxis [12].

Hepatitis A, HBV, hepatitis C (HCV), syphilis and HIV were diagnosed by serology [13–15]. Parents were asked to collect at least one stool for parasite and bacteria analysis [16]. Latent TB infection was defined by a tuberculin skin test (TST) of at least 10 mm without clinical symptoms and normal chest radiography. All children with positive TST had an interferon (IFN)- γ response to *Mycobacterium tuberculosis* (*M. tuberculosis*) antigens performed before treatment [17,18]. Skin infections such as scabies, impetigo and tinea were defined by clinical criteria [19]. The study was approved by the Ethics Committee of the Rhône Alpes and by the CNIL (Commission Nationale de l'Informatique et des Libertés). Statistical analysis was performed using SPSS.10 software.

Results

Demographical data

One hundred and forty-two medical records were retrospectively reviewed and 86% of families agreed to answer the questionnaire. For the 20 remaining records, data were collected only from the hospital chart. Demographical data are reported in Table 1. Children came from 18 different countries, mostly Haiti, Ethiopia and Colombia. Fifty-five per cent of Haitian children ($n = 22$) were adopted after the earthquake that occurred on 12 January 2010. Most children were placed in child care institutions before adoption (86%). The average age of admission to the institutions was 19 months \pm 2 (birth to 7 years old), with an average period of 1.5 years \pm 1 month. Among the 62 children of education age (more than 3 years old), 35 were attending school (57%) within the month that followed their arrival in France.

Anthropometric parameters at the time of consultation

Twenty-four per cent ($n = 34$) of children failed to thrive at the time of consultation. Thirteen per cent ($n = 19$) had a body mass index less than or equal to the third percentile, and 11% had clinical symptoms related to malnutrition.

Transmissible infectious diseases diagnosed

One hundred and seventy-one potentially transmissible infections were diagnosed in the 142 adopted children. In 12% of

TABLE 1. Characteristics of adoptees and their adoptive families

Mean age \pm SEM (standard error of the mean)	3.5 years \pm 2 months (range, 4 months to 10 years)
Boys/girls	49/51%
Countries of origin, % (Nb)	
Haiti	28 (40)
Ethiopia	28 (40)
Colombia	13 (18)
Russia	8 (12)
Vietnam	7 (10)
Burkina Faso	2 (3)
Thailand	2 (3)
Brazil	2 (3)
Ivory coast	1.5 (2)
Kazakhstan	1.5 (2)
Mali	1.5 (2)
Other ^a	7 (7)
Adoptive families' characteristics, % (Nb)	
Couples without child	54 (77)
Couples with at least one child	32 (45)
Single parents	12 (16)
Average distance between clinic and parent's home \pm ESM	65 km \pm 5
Mean time between arrival in France and consultation \pm ESM ^b	8 months \pm 2 (Range, <1–92 months)
Families consulting within the first month, % (Nb)	62 (88)

^aLatvia, Laos, Congo Brazzaville, Lithuania, China, Cameroon, Nepal.

^b14% (20) who came after 1 year did so because of psychological troubles and/or symptoms suggesting early puberty.

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