



Medical Problems of Internationally Adopted Children from Nepal

Article History
<p>Received: 29.12.2021 Revision: 08.01.2022 Accepted: 19.01.2022 Published: 30.01.2022</p>
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How to Cite the Article:
Gonzalo Oliván-Gonzalvo. (2022); Medical Problems of Internationally Adopted Children from Nepal. <i>SRJ Clin & Med Sci.</i> 2(1) 20-24.
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DOI: 10.47310/srjcms.2022.v02i01.006

Abstract: Background: Spain is one of the main countries in the world in international adoption, and Nepali children account for 0.8% of all adoptees. According to United Nations, Nepal is a poorly developed country. Due to the quality of medical care that Nepali children receive in orphanages, it has been reported that the diagnoses described in the pre-adoptive medical reports do not offer an absolute guarantee of accuracy, and sometimes these reports are not provided to adoptive families. The objective of this study was to describe epidemiological characteristics, pre-adoptive history, and medical problems observed in the post-adoption evaluation in a cohort of children adopted from Nepal. **Material & Methods:** Retrospective descriptive study on 11 Nepali adopted children from 2005 to 2011, examined according to a standardized protocol. Variables were collected from pre-adoption medical reports, interviews with the family, and post-adoption evaluation records. **Results:** Epidemiological characteristics and pre-adoptive history: females, 63.6%; all were abandoned and adopted from orphanages; mean age at institutionalization was 32 months, and at adoption was 55 months. 72.7% had a pre-adoptive medical report, and all were diagnosed as "healthy". 54.5% had a vaccination certificate. Medical problems most frequent diagnosed in post-adoption evaluation were iron deficiency anemia (72.7%), xerosis cutis (54.4%), neurodevelopmental delay (45.5%), underweight and stunting (36.4%), and acute bronchitis (36.4%). Only one child had a serious problem (cerebral palsy). The BCG vaccination scar was present in 81.8%. 72.7% showed vaccination immunity against hepatitis B virus. **Conclusion:** The pre-adoption medical information for the Nepali children was unreliable, and all showed more than one medical problem in the post-adoption evaluation. Adoptive families should seek pre-travel specialized medical advice regarding the medical reports and health of the child to be adopted, the updating of routine

immunizations, and the destination-specific health problems.

Keywords: Adoption, Child, Nepal, Disease.

INTRODUCTION

Spain is one of the main countries in the world in the adoption of foreign children. Children from Nepal have accounted for about 0.8% of all children adopted internationally in Spain (Government of Spain. 2021).

Nepal is considered by the United Nations as one of the poorest countries in the world and a poorly developed country (Paalman, M. 2004). Due to the socio-economic and sanitary conditions in Nepal and, in particular, to the quality of medical care that Nepali children receive in foster care institutions, it has been reported that the data and health status diagnoses described in the pre-adoptive medical reports do not offer an absolute guarantee of accuracy, so diagnoses may be incorrect, imprecise, or absent (Paalman, M. 2004; Oliván Gonzalvo, G. 2021a; & Dartiguenave, C. 2012). Furthermore, in a considerable number of cases, the pre-adoptive medical reports are not provided to the adoptive families (Oliván Gonzalvo, G. 2021a; & Dartiguenave, C. 2012).

Therefore, it is necessary to weigh as precisely as possible the uncertainties that might affect the health of Nepali children proposed for intercountry adoption. This is one of the key drivers to adoption decisions, as adopting families are more and more risk-averse. Therefore, competent administrations, collaborating entities, and doctors in the field of international adoption must update their knowledge and professional practices to face this problem (Dartiguenave, C. 2012).

Objective of the study

The objective of this study was to describe the epidemiological characteristics, the pre-adoptive history, and the medical problems observed in the post-adoption evaluation in a cohort of children adopted from Nepal.

MATERIAL AND METHODS

Study design:

A descriptive and retrospective study was carried out.

Data source and sample:

This study was conducted on 11 Nepali adopted children in Spain from 2005 to 2011, and who were examined in a specialized national referral center.

Study procedure and diagnosing method:

All children were examined within the first fifteen days after arrival according to a standardized protocol (Oliván Gonzalvo, G. 2021b). The pre-adoption history, interview with the family, and the anthropometric, clinical, and laboratory records of the post-adoption evaluation were reviewed. Weight and stature growth delay were defined as weight and height for age and sex below 2 standard deviations (SD) with respect to the growth standards of the World Health Organization (World Health Organization. 2021a). Microcephaly was defined as a head circumference for age and sex below 2 SD with respect to the World Health Organization growth standards (World Health Organization. 2021a). To define neurodevelopmental delay in the post-adoption evaluation, the interpretation guidelines of the Haizea-Llevant and Denver II developmental screening tests were followed (Spanish Association of Primary Care Pediatrics. 2009).

Data collection:

The following variables were collected: sex; reason for institutionalization; city of institutionalization; age at the time of institutionalization; institutionalization time; age at adoption; the existence of a pre-adoptive medical report; diagnoses from the pre-adoptive medical report; the existence of a vaccination certificate; diagnoses in the post-adoption evaluation. An Excel® sheet was used to calculate the arithmetic mean and SD of the ages (at the time of institutionalization and adoption), the institutionalization time, and the absolute frequencies and percentages of the qualitative data. Informed consent was not required due to the retrospective design. The data was used in accordance with Organic Law 3/2018 on the Protection of Personal Data and guarantee of digital rights, in force in Spain.

RESULTS

Epidemiological characteristics and pre-adoptive history in the Nepali adopted children are summarized in Table 1. 63.6% were females. All children had been abandoned by their families and were adopted from orphanages. The mean age at the time of institutionalization was 32 months (range: 0-98 months), and at the time of adoption was 55 months (range: 10-128 months). 72.7% had a pre-adoptive medical report, and in all cases, the diagnosis that appeared was "healthy". In the remaining cases, the families were orally informed that the child was "healthy". Only 54.5% had a vaccination certificate. The BCG vaccination scar was present in 81.8% of children.

Table 1. Epidemiological characteristics and pre-adoptive history of adopted children from Nepal (n = 11)

Variable	n (%)	Mean (SD)
Sex		
- Female	7 (63.6)	
- Male	4 (36.4)	
Reason for institutionalization		
- Physical abandonment	11 (100)	
City of institutionalization		
- Patan (Lalitpur)	6 (54.5)	
- Kathmandu	5 (45.5)	
Age at institutionalization (months)		32 (40)
Institutionalization time (months)		23 (7)
Age at adoption (months)		55 (43)
Pre-adoptive medical report available	8 (72.7)	
Vaccination certificate available	6 (54.5)	

Medical problems diagnosed in Nepali children in post-adoption evaluation are summarized in Table 2. The most frequent were iron deficiency anemia (72.7%), xerosis cutis (54.4%), neurodevelopmental delay (45.5%), pondero-statural growth delay (36.4%), and acute bronchitis (36.4%). All children had more than one medical problem. Only one child had a serious medical problem. She was 10 months old and showed a

right hemiparesis and severe neurodevelopmental delay. She was diagnosed with cerebral palsy due to leukomalacia in the left parietal lobe secondary to a chronic stroke in the territory of the left middle cerebral artery. The pre-adoptive medical report was not provided, and the family was orally informed that she was "healthy". One child showed a clinical picture of varicella virus infection.

Table 2. Medical problems of adopted children from Nepal (n = 11)

Category	n (%)
Hematological	8 (72.7)
- Iron deficiency anemia	8 (72.7)
Dermatologic	7 (63.6)
- Xerosis cutis	6 (54.4)
- Pyodermitis	2 (18.2)
- Congenital giant nevus	1 (9.1)
Neurodevelopmental delay	5 (45.5)
- Moderate	4 (36.4)
- Severe	1 (9.1)
Growth delay	4 (36.4)
- Delay in pondero-statural growth	4 (36.4)
- Delayed bone age	2 (18.2)
Respiratory	4 (36.4)
- Acute bronchitis	4 (36.4)
Neurological	2 (18.2)
- Microcephaly	2 (18.2)
- Cerebral palsy	1 (9.1)
Miscellaneous	1 (9.1)
- Varicella virus infection	1 (9.1)

Regarding laboratory tests on thyroid function, celiac disease screening, stool culture, stool ova and parasites, urinalysis, tuberculin skin test (PPD), human immunodeficiency virus 1/2 antibodies and p24 antigen, hepatitis B virus surface antigen, hepatitis C virus

antibodies, hepatitis A virus IgM antibody, and syphilis (VDRL/RPR), the results were normal or negative. Other laboratory examinations with positive results of Nepali adopted children in post-adoption evaluation are summarized in Table 3.

Table 3. Laboratory examinations with positive results of adopted children from Nepal (n = 11)

Test	n (%)
Hepatitis B virus surface antibody	8 (72.7)
Hepatitis A virus IgG antibody	2 (18.2)
Varicella-Zoster virus IgG antibody	2 (18.2)
Measles virus IgG antibody	2 (18.2)
Rubella virus IgG antibody	2 (18.2)
Mumps virus IgG antibody	4 (36.4)
Tetanus toxoid IgG antibody	2 (18.2)
Diphtheria toxoid IgG antibody	2 (18.2)

DISCUSSION

Nepali children who are institutionalized awaiting adoption, in most cases, have been abandoned due to the economic precariousness of their families or are orphans. In general, these children have not been abused and their neurological and emotional situations are not bad (Bertran, R. 2003). In our study, all children had been abandoned by their families, were adopted from orphanages, and 36.4% had moderate neurodevelopmental delay.

Pokhrel *et al.*, and Khanal *et al.*, have observed that the absence of antenatal care and postnatal care in mothers of Nepali children were associated with low birth weight, poor infant and young child feeding, underweight, and stunting (Pokhrel, K. *et al.*, 2016; Khanal, V. *et al.*, 2014a; & Khanal, V. *et al.*, 2014b). Khanal *et al.*, have observed that young children aged less than two years in Nepal are at risk for not meeting

the World Health Organization recommended infant feeding standards given that only about one in three children were provided with the recommended dietary diversity and acceptable diet, suggesting that the majority of children are at risk of undernutrition (Khanal, V. *et al.*, 2013). Stunting, a chronic condition, is an underlying cause of child morbidity and mortality in Nepal (Paalman, M. 2004). Paudel *et al.*, have observed that stunting is a result of multiple factors such as socio-economic, environmental, and inappropriate feeding practices (Paudel, R. *et al.*, 2012). In our study, 72.7% of the children had iron deficiency anemia, and 36.4% showed underweight and stunting.

Yates *et al.*, have observed that dermatologic, respiratory, and gastrointestinal infections were the most commonly diagnosed conditions among adopted Nepali children presenting to a travel medicine clinic in Kathmandu. For this reason, they recommend surveillance and early treatment of infections in

international adoptees in their birth country may help prevent the importation of infectious diseases (Yates, J.A., & Pandey, P., 2006). In our study, the medical problems most frequent were iron deficiency anemia, underweight, stunting, non-infectious dermatologic pathology, neurodevelopmental delay, and respiratory infections. All children showed more than one medical problem. Most of the medical problems found in this study were common conditions among internationally adopted children (Oliván Gonzalvo, G. 2021b). Only one child had a serious medical problem (cerebral palsy), a pre-adoptive medical report was not provided, and the family was orally informed that the child was "healthy". This case is a clear example of the importance of adoptive families being well informed and advised by experienced professionals during the pre-adoption process (Oliván Gonzalvo, G. 2021a).

Children in Nepali orphanages are rarely up-to-date with immunizations. Schulte *et al.*, have observed that 65% of internationally adopted children had no written records of overseas immunizations and that 6% of those with documented overseas immunizations had no valid records and some vaccine doses were not acceptable or not up-to-date under the schedule in which it should have been administered (Schulte, J.M. *et al.*, 2002). Stadler *et al.*, have observed that overall, 64% of internationally adopted children had evidence of hepatitis B virus immunization, with protective antibodies. They also highlight the need for repeat serological testing to detect hepatitis B virus infection or immunization in internationally adopted children who might have been infected or vaccinated just before adoption and thus not have serological evidence in initial testing (Stadler, L.P. *et al.*, 2008). In our study, only 54.5% of children had documented immunizations. Notwithstanding the above, according to the vaccination schedule for Nepal (World Health Organization. 2021b), the BCG vaccination scar was present in 81.8% of the children; 72.7% had vaccination immunity against hepatitis B virus, and 18.2% against measles and rubella viruses, and tetanus and diphtheria toxoids; 36.4% had natural immunity against the mumps virus, and 18.2% against the hepatitis A and varicella-zoster viruses.

Adoptive families should seek pre-travel medical advice before traveling to adopt a child. This provides an opportunity to discuss destination-specific health issues and to ensure that routine immunizations are up-to-date (Oliván Gonzalvo, G. 2021a). Infections among international adoptees have the potential to be transmitted to family members and other children in the adopted child new country (Schulte, J.M. *et al.*, 2002). As an example, screening for hepatitis A virus infection is not currently routinely recommended in internationally adopted children. However, Abdulla *et al.*, and Raabe *et al.*, recommend that all international adoptees arriving from countries with high or intermediate hepatitis A virus endemicity, such as

Nepal, should be screened for hepatitis A virus infection on arrival to the country of adoption and that adoptive families must be vaccinated against hepatitis A virus before traveling (Abdulla, R.Y. *et al.*, 2010; & Raabe, V.N. *et al.*, 2014). In our study, two children had suffered hepatitis A virus infection prior to adoption and one showed a clinical picture of varicella virus infection upon arrival.

CONCLUSION

The pre-adoption medical information for the Nepali children was unreliable, and all showed more than one medical problem in the post-adoption evaluation. Adoptive families should seek pre-travel specialized medical advice regarding the medical reports and health of the child to be adopted, the updating of routine immunizations, and the destination-specific health problems.

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