Chest X-ray-confirmed pneumonia in children in Fiji

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Objective To calculate the incidence and document the clinical features of chest X-ray- (CXR-) confirmed pneumonia in children aged between 1 month and 5 years living in Greater Suva, Fiji.

Methods A retrospective review was undertaken of children aged between 1 month and 5 years with a discharge diagnosis suggesting a lower respiratory tract infection (LRTI) admitted to the Colonial War Memorial Hospital in Suva, Fiji, in the first 10 days of each month from 1 January 2001 to 31 December 2002. Clinical data were collected and CXRs were reread and classified according to WHO standardized criteria for CXR-confirmed pneumonia.

Findings Two hundred and forty-eight children with LRTI met the inclusion criteria. CXRs were obtained for 174 (70%) of these cases, of which 59 (34%) had CXR-confirmed pneumonia. The annual incidence of CXR-confirmed pneumonia was 428 cases per 100 000 children aged between 1 month and 5 years living in Greater Suva. If a similar proportion of the children for whom CXRs were unavailable were assumed to have CXR-confirmed pneumonia, the incidence was 607 per 100 000. The incidence appeared to be higher in Melanesian Fijian than Indo-Fijian children. The case-fatality rate was 2.8% in all children with LRTI, and 6.8% in those with CXR-confirmed pneumonia.

Conclusion This is the first study to document the incidence of CXR-confirmed pneumonia in a Pacific Island country, and demonstrates a high incidence. A significant proportion of hospital admissions of children with LRTI are likely to be preventable by the introduction of pneumococcal conjugate vaccine.

Keywords Pneumonia, Pneumococcal/diagnosis/epidemiology; Lung/radiography; Respiratory tract infections/classification/epidemiology; Child; Retrospective studies; Fiji (*source: MeSH, NLM*).

Mots clés Pneumopathie à pneumocoque/diagnostic/épidémiologie; Poumon/radiographie; Voies aériennes supérieures, Infection/classification/épidémiologie; Enfant; Etude rétrospective; Fidji (*source: MeSH, INSERM*).

Palabras clave Neumonía neumocócica/diagnóstico/epidemiología; Pulmón/radiografía; Infecciones del tracto respiratorio/clasificación/epidemiología; Estudios retrospectivos; Niño; Fiji (*fuente: DeCS, BIREME*).

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Voir page 432 le résumé en français. En la página 432 figura un resumen en español.

Introduction

Each year, more than 10 million children worldwide die before their fifth birthday, and more than 97% of these deaths occur in developing countries (*1*, *2*). Almost two million deaths are caused by acute respiratory infections (ARI), mainly pneumonia (*3*). *Streptococcus pneumoniae* is the commonest bacterial cause of pneumonia in developing countries (*4*). The epidemiology of pneumococcal pneumonia is poorly defined in most regions, and has not been previously documented in any Pacific Island country. Health authorities need information on the burden of pneumococcal disease to assist them to make a decision regarding the introduction of the new 7-valent pneumococcal conjugate vaccine for infants (*5*).

The epidemiology of pneumococcal pneumonia is poorly documented because of the inherent difficulties in diagnosing pneumonia and establishing a specific etiology. In developing countries, childhood pneumonia is diagnosed using clinical parameters, usually based on the presence of cough and raised respiratory rate (*6*). This is a sensitive definition, maximizing the number of children identified and treated empirically, but it is non-specific and therefore highly dependent on the context in which it is being applied. This makes it unsuitable for

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epidemiological purposes (*7*). Blood cultures are often used to investigate the causative organism in cases of pneumonia. However, in most settings, very few pneumonia cases are bacteraemic, making this an insensitive test (*8*). Cultures from lung aspirates have a higher diagnostic yield, but this technique is rarely used because of the associated risk of pneumothorax (*9*). In the past, chest X-rays (CXRs) have not proved helpful for differentiating between different causes of pneumonia (*10*). However, no new methods have proved to be specific enough in diagnosing pneumococcal pneumonia to be useful for epidemiological studies or vaccine trials (*11*).

Vaccine trials designed to estimate the burden of vaccine-preventable disease, often referred to as "vaccine probe" studies, have been developed as an indirect method of measurement to overcome the intrinsic difficulties in defining the burden of pneumococcal pneumonia (*12*, *13*). To provide an objective end-point, WHO has developed a standardized, radiological case definition of certain CXR-confirmed pneumonia for use in clinical trials (*7*). This minimizes inter-observer variability, enabling results to be compared across different time frames and locations (*7*, *14*). The guidelines base the diagnosis of pneumonia on CXR features believed to be associated with bacterial lung infections. This is based on the assumption that cases of pneumococcal pneumonia constitute a larger percentage of cases of CXR-confirmed pneumonia than of all lower respiratory tract infections (LRTI). The efficacy of pneumococcal conjugate vaccine against CXR-confirmed pneumonia in both developing and industrialized countries has been shown to be 20–30% (*12*, *13*, *15*).

There have been no previous studies to estimate the incidence of childhood pneumonia in Fiji. The aim of the present study was to calculate the incidence of CXR-confirmed pneumonia in children from Fiji to establish a benchmark for further investigation of the vaccine-preventable burden of pneumococcal pneumonia. In addition, the clinical management, etiology and case-fatality rates were documented.

Materials and methods

Study site

Fiji is a Pacific Island country with a total population of 823 300. Health standards are high, and health care is available and accessible to the majority of the population. The infant mortality rate is 18 per 1000 live births (*16*). The present study was conducted in the Colonial War Memorial Hospital (CWMH), located in the capital city, Suva. It is the only tertiary hospital in Fiji, and the only hospital in the Greater Suva region to admit children. Our investigations prior to the commencement of this study indicated that it was unlikely that children living in this subdivision who developed pneumonia would be admitted elsewhere. The only private hospital is small and does not admit children.

Study population

The study population consisted of all children between 1 month and 5 years of age diagnosed with an LRTI, who were admitted to CWMH in the first 10 days of every month from 1 January 2001 to 31 December 2002. Only the first admission for each child was included. Although it could be argued that the true incidence is better described by an analysis of the total number of cases, we chose to include only the first admission for each child as this is how most pneumococcal vaccine trials are analysed. The study population was limited to children with a residential address within the defined Greater Suva region. Children were excluded if they had a concurrent diagnosis of asthma.

All cases with a discharge diagnosis suggesting an LRTI, including pneumonia, bronchopneumonia, bronchiolitis, bronchitis, lung infection, acute respiratory infection, respiratory tract infection or lower respiratory infection, were identified from the paediatric admissions registers of the CWMH from 2001 and 2002. To ensure that the data were complete, the records of paediatric deaths and the medical laboratory records were reviewed for any missed cases. The medical records of cases were reviewed. Where medical records were not found, demographic details were collected from the admissions register and used to search for CXRs. These cases were included in the analysis, except when there were no data available describing the admission and it was not possible to classify the severity of disease. CXRs taken within 3 days of admission were included. CXRs were reread by a qualified CXR reader and classified according to WHO criteria (*7*).

WHO definitions of clinical pneumonia were used (*17*). Very severe pneumonia was defined as the presence of one or more of the following signs of hypoxia: oxygen saturation less than 90%, cyanosis, unconsciousness, seizures, admission to an intensive care unit or requirement for ventilation. In the absence of any of these signs, children were considered to have severe pneumonia because of their requirement for hospital admission.

The catchment population included all children aged 1 month to 5 years living in the Greater Suva region. The source of the population statistics was the 1996 Fijian census (*18*). As there were no population data on neonates, neonates were assumed to comprise 1/60th of the population aged under 5 years of age and this figure was subtracted to determine the most accurate denominator for children under 5 years of age and outside the neonatal period. Population growth was not corrected for, as there had been considerable emigration following the attempted coup in 2000, and this was considered likely to balance natural growth. Population data used in the calculation of incidence of pneumonia according to ethnicity came from the Fiji Bureau of Statistics Household Income and Expenditure Survey, 2002 (*19*). These data were used in preference to the census data as it is likely that emigration affected some ethnic groups more than others.

Data analysis

Data were entered into an EpiData database (version 2.1b). Weight-for-age (WFA) Z-scores of children were calculated using the EpiInfo program (EpiInfo 2002). Children with a WFA Z-score of less than or equal to –2 were considered underweight. The annual incidence of CXR-confirmed pneumonia was calculated per 100 000 children aged between 1 month and 5 years living in Greater Suva as shown in Table 1. Incidence was calculated according to ethnicity using the same method (Table 2). For those cases for which no CXRs were found, clinical parameters were compared to those from cases for which the CXRs were available, using a chi-square test or Fisher's exact test as appropriate for categorical variables, and two-sample *t*-tests for continuous variables. A *P*-value of less than 0.05 was considered to indicate a statistically significant difference between groups.

Ethical approval

Ethical approval for this study was given by the University of Melbourne Human Research Ethics Committee and the Fiji National Research Ethics Review Committee.

Results

Two hundred and forty-eight cases with a discharge diagnosis of LRTI were identified (Fig. 1). Thirteen admissions were excluded because they represented the second or third admission for patients already included. CXRs were located and reread for 174 cases (70%), and, of these, 59 (34%) had CXR-confirmed pneumonia. No medical records were located for 12 of the patients, but demographic details available from the admissions register were sufficient to confirm that these cases met the inclusion criteria.

The annual incidence of CXR-confirmed pneumonia was 428 cases per 100 000 children aged 1 month to less than 5 years (95% confidence intervals (CI), 346–528) (Table 1). Clinical findings were compared between LRTI cases for whom CXRs were available and the 30% of children for whom CXRs could not be found (Table 2). There were no statistically significant differences between the groups except with regard to ethnicity; more CXRs were found for the Melanesian Fijian group (P = 0.035) although there was a trend towards less severe illness in those children for whom CXRs were unavailable (Table 3). If it were assumed that the 34% positive rate found in the group for whom CXRs were available was also applicable to the group for whom CXRs could not be obtained, this would suggest that an extra 25 cases of CXR- confirmed pneumonia occurred within the study time frame, but were missed due to failure to perform an X-ray or inadequate storage of radiographs. If these cases are included in the calculations, the annual incidence becomes 607 per 100 000 children aged between 1 month and 5 years. The incidences of LRTI and CXR-confirmed pneumonia were calculated according to ethnicity and also demonstrated higher levels of disease in Melanesian Fijian children (2353 and 676 per 100 000 for LRTI and CXR-confirmed pneumonia, respectively) than in Indo-Fijian children (939 and 23 per 100 000, respectively), while children from other ethnic populations had intermediate rates of LRTI, and CXR-confirmed pneumonia (1301 and 264 per 100 000, respectively) (Table 2). The incidence ratio for Melanesian Fijian compared to Indo-Fijian children for all LRTI was 2.5 (95% CI, 1.9–3.4) and for CXR-confirmed pneumonia was 29.4 (95% CI, 9.8–143.2).

Of the 248 patients identified with LRTI, 63% were male, 61% were infants and most were Melanesian Fijian (76%). No seasonal pattern was evident in the incidence of LRTI or CXR-confirmed pneumonia. Most children admitted with LRTI had a discharge diagnosis that included pneumonia or bronchopneumonia (90%). Tachypnoea and indrawing of the lower chest wall were recorded on admission in 73% and 70% of patients, respectively. These findings are consistent with WHO guidelines that require the presence of at least one of these signs for the clinical diagnosis of pneumonia, while the indrawing of the lower chest wall indicates "severe pneumonia" requiring hospital admission (*17*). The diagnosis of "very severe pneumonia", according to the WHO definition, requires the presence of at least one sign of hypoxia, which was present in 25% of the LRTI patients for whom medical records were available for review.

The most frequently administered parenteral and oral medications were penicillin (75%) and amoxicillin (40%), respectively. Other drugs commonly used were oral and parenteral flucloxacillin/cloxacillin (14% and 18%, respectively), gentamicin (15%) and parenteral chloramphenicol (17%). Ceftriaxone, erythromycin, rifampicin and cotrimoxazole were rarely used. The median duration of use of antibiotics ranged from 3 to 8 days for those commonly used, suggesting good adherence to WHO recommendations (*6*).

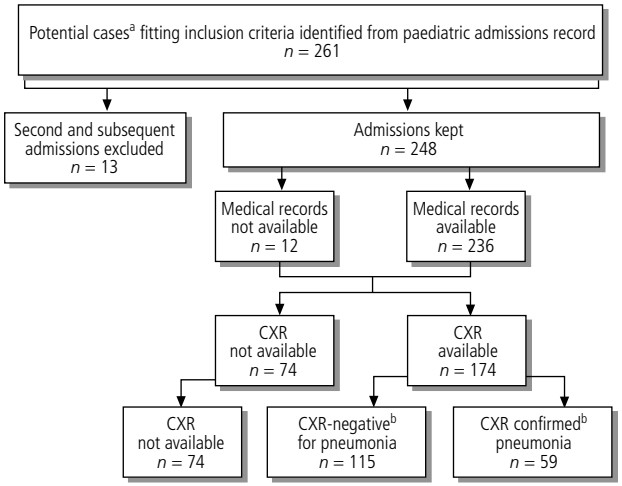
Blood culture results were available for 217 (88%) of the cases with LRTI. Of these, 18 (8%) had positive isolates. The most frequently identified bacteria were *S. pneumoniae* (five cases) and *Staphylococcus aureus* (five cases). One patient was

Table 1. **Calculation of the annual incidence of chest X-ray (CXR)-confirmed pneumonia in children aged 1 month to 5 years in Greater Suva, Fiji**

Step	Calculation	Result
Calculation of the number of cases (numerator)		
Step 1: Number of cases[a] identified within sampling time frame[b]		59
Step 2: Number of cases[a] within total time frame[c]	$59 \text{ cases} \times \frac{(2 \text{ years} \times 365 \text{ days})}{(10 \text{ days} \times 24 \text{ months})}$	179.5
Step 3: Annual number of cases[a]	$\frac{179.5 \text{ cases}}{2 \text{ years}}$	89.7
Calculation of the catchment population (denominator)		
Step 4: Population of children aged under 5 years living in Greater Suva		21 306
Step 5: Catchment population[d]	21 309 – (1/60 × 21 309)	20 954
Calculation of the incidence		
Step 6: Annual incidence of CXR-confirmed pneumonia per 100 000 children aged 1 month to 5 years	$\frac{89.7 \times 100\,000}{20\,954}$	**428.1**

[a] Case: child aged 1 month to 5 years with CXR-confirmed pneumonia living in Greater Suva, Fiji.
[b] Sampling time frame: first 10 days of every month from 1 January 2001 to 31 December 2002.
[c] Total time frame: all days from 1 January 2001 until 31 December 2002.
[d] Catchment population: all children under 5 years old living in Greater Suva, minus neonates.

Fig. 1. **Description and categorization of cases included in the study**



CXR = chest X-ray.

[a] Case: child aged 1 month to 5 years from Greater Suva, Fiji, admitted to the Colonial War Memorial Hospital in the first 10 days of any month from 1 January 2001 to 31 December 2002 with a discharged diagnosis suggesting a lower respiratory tract infection.

[b] CXR findings classified according to WHO criteria.

WHO 05.58

Table 2. **The incidence of chest X-ray (CXR)-confirmed pneumonia in children between 1 month and 5 years according to ethnicity**

	Melanesian	Indo-Fijian	Other
All LRTI	188 (76)[a]	40 (16)	20 (8)
CXR available	140 (80)	25 (14)	10 (6)
CXR-positive	54 (91)	1 (2)	4 (7)
Number CXR-positive in 1 year[b]	82.1	1.5	6.1
Proportion of under 5-year-old population[c]	58%	31%	11%
Population 1 m–5 yrs living in Greater Suva[d]	12 153	6496	2305
Annual incidence of CXR-confirmed pneumonia per 100 000 children 1 m–5 yrs	675.7	23.4	263.8

LRTI = Lower respiratory tract infections.

[a] Row percentage.

[b] Number positive within time frame / (24 months x 10 days) x 365 days.

[c] Based on the ethnic distribution of all children aged less than 5 years living in urban areas in the Central or Eastern divisions of Fiji in 2002 (the majority being from Greater Suva) (*19*).

[d] Based on population data compiled by the Fiji Bureau of Statistics from the 1996 census (*18*) and ethnicity data from 2002 (*19*).

positive for both of these bacteria. Of the patients with CXR-confirmed pneumonia, blood cultures were performed for 55, seven (13%) of which were positive; three with *S. pneumoniae* and one with *S. aureus*. The case-fatality rate was 2.8% for all LRTI and 6.8% for CXR-confirmed pneumonia (difference not statistically significant). Of the seven children who died, four had serious underlying conditions. The median duration of hospitalization for the children who died was three days (range 1–21 days).

Discussion

The present study is the first population-based epidemiological study of the incidence of pneumonia using the radiological definition developed by WHO for use in vaccine trials. There are therefore no other published studies with which to compare this one, although it is anticipated that such studies will be published in the near future.

The annual incidence of CXR-confirmed pneumonia in Greater Suva, Fiji, was at least 428 per 100 000 children aged between 1 month and 5 years, but may be as high as 607 per 100 000. The experience from studies of the efficacy of pneumococcal conjugate vaccine against CXR-confirmed pneumonia, defined by WHO criteria, can be used to estimate the likely burden of vaccine-preventable pneumococcal pneumonia in Fiji. If this study was generalized to cover all children between 1 month and 5 years of age in Fiji (92 644 children (*18*)), based on a vaccine efficacy of 20%, the introduction of 7-valent pneumococcal conjugate vaccine would prevent 79–112 hospitalizations for CXR-confirmed pneumonia annually, given an incidence of 428 to 607 per 100 000. Assuming a case-fatality rate of 7% in this group, 6–9 deaths could potentially be prevented annually. Economic and health savings are likely to be appreciably higher than this figure would suggest as there will be many cases of pneumococcal disease not included because they do not conform to the WHO definition of CXR-confirmed pneumonia. Thus, reductions could also be expected in the number of non-hospitalized children and in those hospitalized but in whom there are no significant CXR findings, as well as in other manifestations of pneumococcal infection such as meningitis and bacteraemia.

Melanesian Fijian children were 2.5 times more likely than Indo-Fijian children to present to hospital with LRTI, but 29 times more likely to present with CXR-confirmed pneumonia. These results suggest that there may be a true ethnic difference in incidence of LRTI and susceptibility to more severe disease in Fiji. Ethnic differences in disease burden have been described in Alaska, Australia and Israel, and in a previous study from Fiji (*20*–*23*). Although it is possible that genetically determined differences in susceptibility to pneumococcal infection exist, it is more likely that the observed differences are related to systematic differences in important risk factors, such as housing, health-seeking behaviour, exposure to indoor air pollution and malnutrition rates. Fiji is an island country with little seasonality, so the lack of a seasonal trend was to be expected.

The generalization of these findings to the whole population of children under 5 years old in Fiji may be questioned, as this study included urban and periurban populations, with good access to health care and appropriate antibiotic treatment. Based on international experience, the incidence of disease and case-fatality rates are likely to be higher in rural or remote areas, for reasons including poorer access to basic health care, less availability of antibiotics, lower immunization coverage, less community education, greater use of traditional medicines and of solid fuel for cooking, higher unemployment levels, and different ethnic representation or different patterns of local disease outbreaks (*24*, *25*). These factors are present in rural Fiji, but their impact is uncertain, although they would be likely to strengthen the argument in favour of introducing the vaccine.

Table 3. **Demographic and clinical features of children admitted to hospital with a lower respiratory tract infection (LRTI) in 2001 and 2002, grouped according to chest X-ray (CXR) availability and result**

	CXR-positive (*n* = 59) % of cases	CXR-negative (*n* = 115) % of cases	Total with CXR (*n* = 174) % of cases	No CXR available (*n* = 74) % of cases
Gender (m/f)	66/34	62/38	63/37	63/37
Age (1 m–1yr / 1–5 yrs)	56/44	67/33	64/36	55/45
Ethnicity (Fijian/Indian/Other)	91/2/7	75/20/5[a]	80/14/6	65/22/13[b]
Signs/comorbidities on admission[c]				
Fever[d]	36	37	37	32
Tachypnoea[e]	83	75	78	75
Hypoxaemia[f]	38	18[g]	25	16
Chest indrawing	76	71	73	77
Respiratory distress	33	32	33	34
Cyanosis	9	3	5	0
Altered consciousness	3	3	3	2
Seizures[h]	3	4	4	6
Toxic/septic appearance	29	18	22	19
Very severe LRTI[i]	34	25	28	17
Anaemia	52	25[a]	34	22
Malnutrition[j]	19	15	16	11
Management				
Oxygen used	26	19	22	17
Admitted to ICU	26	13[g]	17	8
Ventilated	10	3	5	6
Deaths	7	1[j]	3	3

ICU = intensive care unit.

[a] $P < 0.01$ for comparison of CXR-positive and CXR-negative cases.

[b] $P < 0.05$ for comparison of cases for whom CXRs were available with those for whom CXRs were unavailable.

[c] All signs and comorbidities were considered absent if not documented in the medical records, except for fever (number with data available in order of columns: 56; 110; 172; 62), tachypnoea (58; 113; 171; 64), hypoxaemia (34; 67; 101; 31). 12 cases without medical records excluded from this section: three excluded from group for whom CXRs were available (all negative) and nine from group for whom CXRs were unavailable.

[d] Temperature > 38 °C per axilla.

[e] Respiratory rate > 60 breaths/min in infants 1 m – < 2 m; > 50 breaths/min in infants 2 m – 1 yr; > 40 breaths/min in children 1 yr – 5 yr (*6*).

[f] Oxygen saturation < 90% in room air.

[g] $P < 0.05$ for comparison of CXR-positive and CXR-negative cases.

[h] Excluding simple febrile seizures from 1 January 2002 until 31 December 2002. Some seizures in 2001 may have been febrile seizures, but were not excluded.

[i] One or more of: cyanosis, oxygen saturation < 90%, altered consciousness, admission to intensive care unit, ventilation, seizures.

[j] Defined as weight for age <–2 calculated according to weight and age at time of admission.

Rational administration of antibiotics at CWMH was demonstrated and was consistent with WHO recommendations. Penicillin and amoxicillin or ampicillin are effective in treating the commonest bacterial causes of pneumonia; *S. pneumoniae* and *Haemophilus influenzae*. The infrequent administration of flucloxacillin plus gentamicin or ceftriaxone, or chloramphenicol suggests that these medications were appropriately reserved for patients with very severe, but less common, infections caused by *Staphylococcus aureus*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*.

Thirty-one children (12.5%) had hypoxaemia, although this is presumably an underestimate since oximetry was documented in less than half of the cases. Oxygen use was noted in only 60% of patients with signs of hypoxia, and oxygen was not administered in nine cases with documented hypoxaemia on pulse oximetry. This suggests inadequate oxygen administration or failure to recognize hypoxaemia, but these findings might be misleading due to poor recording of oxygen use. The prevalence of bacteraemic pneumonia was 8% of all LRTI cases and 13% of the CXR-confirmed pneumonia cases. Pretreatment with antibiotics was common (25% and 29% of all LRTI and CXR-confirmed cases, respectively), which is likely to have reduced the yield of positive cultures. There were also some deficiencies in laboratory techniques and facilities at CWMH which probably reduced the sensitivity of culture techniques.

Case-fatality rates of 2.8% of LRTI cases and 6.8% of CXR-confirmed cases are consistent with global experience, and lower than rates seen in many developing countries (*26–32*). Useful comparisons between different ethnic, age and gender groups are difficult to make because of the very small numbers involved. The appropriate use of antibiotic therapy at CWMH reflects well on the quality of care provided there and may explain the low mortality, as well as helping to control the emergence of antimicrobial resistance.

The observed differences between CXR-positive and -negative cases, especially rates of hypoxia and admission to

the intensive care unit (Table 3), lend support to the objective of the WHO guidelines for CXR interpretation to identify those patients more likely to have bacterial, and therefore pneumococcal, infections.

There are important limitations to retrospective studies such as the present one. The catchment population was intended to include only children expected to present to CWMH with pneumonia, but the numbers likely to seek private, outpatient care for pneumonia could not be determined. Population data came from the1996 census. No correction could be made for subsequent population growth or decline, and an assumption was made about the exclusion of neonates. Some cases may have been missed because of incomplete CWMH admission records or admission to other hospitals, but this is unlikely as the quality of admission records was good. The use of a hospital-based study design can introduce survivor bias by missing children who die without medical attention. However, health care in Greater Suva is free and easily accessible; mortality rates are low and children rarely die at home. Rereading of CXRs may have introduced bias as this was undertaken by only one examiner, who was aware that subjects had an LRTI. The CXRs of 15 patients were suboptimal, potentially affecting their interpretation.

This study demonstrates the importance of pneumonia as a cause of childhood morbidity in a developing country with good health care and low mortality rates. The results may be applicable to other Pacific Island countries. Where health services are less adequate and/or mortality rates are higher, it can be assumed that pneumonia rates are correspondingly higher. A more accurate measure of the burden of vaccine-preventable pneumonia could be obtained by a prospective, descriptive study or by a disease burden study, undertaken in conjunction with the introduction of a pneumococcal conjugate vaccine. This may be the next step for Fiji. ■

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Competing interests: none declared.

Résumé

Pneumonies radiologiquement confirmées chez les enfants des Îles Fidji

Objectif Calculer l'incidence et réunir les caractéristiques cliniques de pneumonies confirmées par radiographie des poumons survenues chez des enfants de 1 mois à 5 ans, vivant dans la conurbation comprenant Suva, Capital des Îles Fidji.

Méthodes Une étude rétrospective a été entreprise sur les enfants de 1 mois à 5 ans admis au Colonial War Memorial Hospital de Suva, Iles Fidji, au cours des 10 premiers jours de chaque mois, du 1er janvier 2001 au 31 décembre 2002, et dont le diagnostic de sortie laissait supposer une infection des voies respiratoires inférieures. Des données cliniques ont été recueillies et les radiographies pulmonaires ont été soumises à une relecture et classées selon les critères normalisés de l'OMS relatifs aux pneumonies confirmées par radiographie.

Résultats Les critères de recrutement ont été satisfaits pour 248 enfants. Les radiographies pulmonaires ont été obtenues dans 174 (70 %) des cas, parmi lesquels 59 (34 %) correspondaient à une pneumonie confirmée. On a déterminé une incidence annuelle des pneumonies radiologiquement confirmées de 428 cas pour 100 000 enfants de 1 mois à 5 ans vivant dans la conurbation comprenant Suva. En supposant une proportion des cas de pneumonie confirmée similaire parmi les enfants dont les radiographies n'étaient pas disponibles, on est parvenu à une incidence de 607 cas pour 100 000 enfants. L'incidence semblait plus élevée chez les enfants d'origine mélanésienne que chez ceux d'origine indienne. Le taux de létalité était de 2,8 % pour l'ensemble des enfants atteints d'infections des voies respiratoires inférieures et de 6,8 % chez ceux présentant une pneumonie radiologiquement confirmée.

Conclusion Voici la première étude visant à déterminer l'incidence de la pneumonie radiologiquement confirmée dans un pays insulaire du Pacifique. Elle fait apparaître une incidence élevée. Il est probable qu'une forte proportion des admissions hospitalières infantiles pour une affection des voies respiratoires inférieures pourrait être prévenue par la mise en place d'une vaccination utilisant un vaccin antipneumococcique conjugué.

Resumen

Neumonía confirmada mediante radiografía de tórax en la población infantil de Fiji

Objetivo Calcular la incidencia y documentar las características clínicas de la neumonía confirmada mediante radiografía de tórax (RT) entre los niños de 1 mes a 5 años del gran Suva, Fiji.

Métodos Se emprendió un análisis retrospectivo de los niños de entre 1 mes y 5 años con diagnóstico de alta sugestivo de infección de las vías respiratorias inferiores (IVRI) y que habían sido ingresados en el Colonial War Memorial Hospital de Suva, Fiji, en los diez primeros días de cada mes entre el 1 de enero de 2001 y el 31 de diciembre de 2002. Se reunieron los datos clínicos pertinentes y las RT fueron sometidas a una nueva lectura y clasificadas de acuerdo con los criterios normalizados de la OMS para la neumonía confirmada mediante RT.

Resultados 248 niños con IVRI satisficieron los criterios de inclusión. Se habían obtenido RT en 174 (70%) de estos casos, 59 de los cuales (34%) presentaron neumonía confirmada por RT. La incidencia anual de neumonía así confirmada fue de 428 casos por 100 000 niños de 1 mes a 5 años residentes en la zona del gran Suva. Atribuyendo el diagnóstico de neumonía confirmada mediante RT a una proporción semejante de los niños para los que no se disponía de radiografía, la incidencia resultante es de 607 por 100 000. La incidencia parece mayor en los niños de origen melanesio que en los de origen indio. La tasa de letalidad fue del 2,8% entre todos los niños con IVRI, y de un 6,8% entre los casos de neumonía confirmada mediante RT.

Conclusión Este estudio es el primero en el que se documenta la incidencia de neumonía confirmada mediante RT en un país insular del Pacífico, y pone de relieve una elevada incidencia de la enfermedad. Una considerable proporción de los ingresos hospitalarios de niños con IVRI podrían probablemente prevenirse administrando la vacuna antineumocócica conjugada.

Arabic

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