

# **Survival of Children with AIDS : Experience in a University Hospital in Northeast Thailand**

**PAGAKRONG LUMBIGANON, M.D.\*,  
POPE KOSALARAKSA, M.D.\*,  
MALINEE LOAPAIBOON, M.Sc.\*\***

## **Abstract**

The survival experience of pediatric AIDS patients from three points: birth, age at first symptom and age at AIDS diagnosis (by the WHO definition) was studied. We had 90 subjects, 46 males and 44 females. They were under 15 years of age and were diagnosed as having perinatally-acquired pediatric AIDS. The children came to Srinagarind Hospital between January, 1989 and December, 1997. They were followed-up until April 30, 1998. Patients who did not come to the hospital were traced by confidential mail. The two most common first symptoms were chronic diarrhea (36.7%) and persistent lower respiratory tract infection (34.4%). The median age at the first symptom was four months (95% CI = 3 to 5 months) and the median age at diagnosis was 13 months (95% CI = 11 to 15 months). Thirty-nine cases received antiretroviral treatment, either AZT, ddI or both. Forty-five cases died, 18 cases lived to the end of the study, 27 could not be followed-up. A survival curve was calculated according to the Kaplan and Meier method using SPSS version 6.0. The 1- and 2-year survival rates from the time of the first symptom were 75.3 per cent (95% CI = 65.8% to 84.7%) and 60.3 per cent (95% CI = 49.0% to 71.6%). The corresponding survival rates from AIDS diagnosis were 59.7 per cent (95% CI = 48.4% to 71.1%) and 42.8% (95% CI = 30.3% to 55.3%), respectively.

**Key word :** Survival, Children, AIDS, Thailand

**LUMBIGANON P, et al**  
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\* Department of Pediatrics, Faculty of Medicine, Khon Kaen University,

\*\* Department of Biostatistics and Demography, Faculty of Public Health, Khon Kaen University, Khon Kaen 40002, Thailand.

Children with acquired immuno-deficiency syndrome (AIDS) are subject to a wide range of clinical manifestations and rates of survival are variable<sup>(1)</sup>. In the early stages of the epidemic, only cases that progressed rapidly to AIDS were observed. The European Collaborative Study estimated that 26 per cent of infected children will be diagnosed as having AIDS within a year after birth and 40 per cent of them die within one year after diagnosis<sup>(2)</sup>. Recent data on the age of children with perinatally-acquired HIV and their survival showed that the average time to identify perinatally-acquired clinical AIDS is longer than had been reported, as only 14 per cent were diagnosed in the first year of life<sup>(3)</sup>.

The first case of pediatric AIDS in Thailand was reported in 1988 and since then the number of cases has risen dramatically<sup>(4)</sup>. There have been many reports describing the clinical manifestations and the mortality of pediatric AIDS in Thai children but so far no reports have been published on the survival experience of these children<sup>(5,6)</sup>.

Our objective was to study the survival experience of pediatric AIDS patients from birth, from first symptom and from the diagnosis of AIDS, at Srinagarind Hospital, Khon Kaen University, Khon Kaen province, Northeast Thailand. This information forms a baseline data set on the survival of pediatric AIDS in this region.

## MATERIAL AND METHOD

The study population was children under 15 years of age who came to Srinagarind Hospital, Khon Kaen University, between January, 1989 and December, 1997. Included in the study were patients who acquired HIV infection perinatally and had at least two major and two minor symptoms as defined by the World Health Organization (WHO) definition for pediatric AIDS.

**Major criteria :** 1. weight loss or failure to thrive with or without delayed development; 2. chronic or recurrent diarrhea for more than 1 month; 3. chronic fever for more than 1 month; and, 4. persistent or recurrent lower respiratory tract infection.

**Minor criteria :** 1. generalized lymphadenopathy and/or hepatosplenomegaly; 2. oral thrush; 3. repeated common infections; 4. chronic cough; and, 5. generalized dermatitis.

Excluded were patients who acquired HIV infection from any sources other than maternal transmission and patients whose medical records could not be obtained.

Data collection included demographic features: date of birth, sex, age at first clinical symptom according to the WHO definition (above), age at the diagnosis of AIDS, and age at death. Ages were recorded in months.

Patients were followed-up at/by the Pediatric Infectious Diseases Clinic, Outpatient Department, Srinagarind Hospital. The end of the study was April 30, 1998. Patients who did not come for follow-up were traced by mail. Letters along with reply-postcards were sent to parents or guardians to ask about the patient's health. To protect family and patient confidentiality, the diagnosis of AIDS was never revealed in either the letters or the reply-postcards. A second letter was sent to those who did not reply within six weeks. Patients who could not be contacted had their follow-up record "censored". The Ethics Committee at the University of Khon Kaen reviewed and approved our protocol.

**Statistical analysis:** Demographic characteristics were described in percentages for each variable. Survival curves were calculated by the Kaplan and Meier method<sup>(7)</sup>. Data were processed by SPSS version 6.

**Sample size calculation:** The estimated 1-year survival of children after AIDS diagnosis has been 70 per cent. Given the precision of the estimate of 10 per cent points at the 95 per cent confidence level, the required sample should be at least 81<sup>(8)</sup>.

## RESULTS

We had 90 pediatric AIDS patients, 46 males and 44 females. They were born between 1989 and 1997. The common clinical manifestations included weight loss (81.1%), generalized lymphadenopathy and/or hepatosplenomegaly (78.9%), chronic diarrhea (74.4%) and oral thrush (71.1%). The two most common first symptoms were chronic diarrhea (36.7%) and severe or recurrent lower respiratory tract infection (34.4%) (Table 1).

The common infections in these patients included *Pneumocystis carinii* pneumonia (36 cases), salmonellosis (9 cases), tuberculosis (8 cases). Twenty cases had other bacterial infections. There were three cases of cryptococcal meningitis and one case of *Penicillium marneffei* sepsis and osteomyelitis.

The management of pediatric AIDS included treatment of infections, cotrimoxazole pro-

**Table 1.** Symptoms presented as the first clinical manifestation in the 90 pediatric AIDS patients.

| Clinical manifestation <sup>+</sup>    | No. | %    |
|--|-----|------|
| Chronic diarrhea                       | 33  | 36.7 |
| Persistent lower respiratory infection | 31  | 34.4 |
| Chronic fever                          | 17  | 18.9 |
| Oral thrush                            | 15  | 16.7 |
| Weight loss                            | 13  | 14.4 |
| Generalized dermatitis                 | 4   | 4.4  |
| Repeated common infections             | 4   | 4.4  |

<sup>+</sup>Some patients had more than 1 symptom

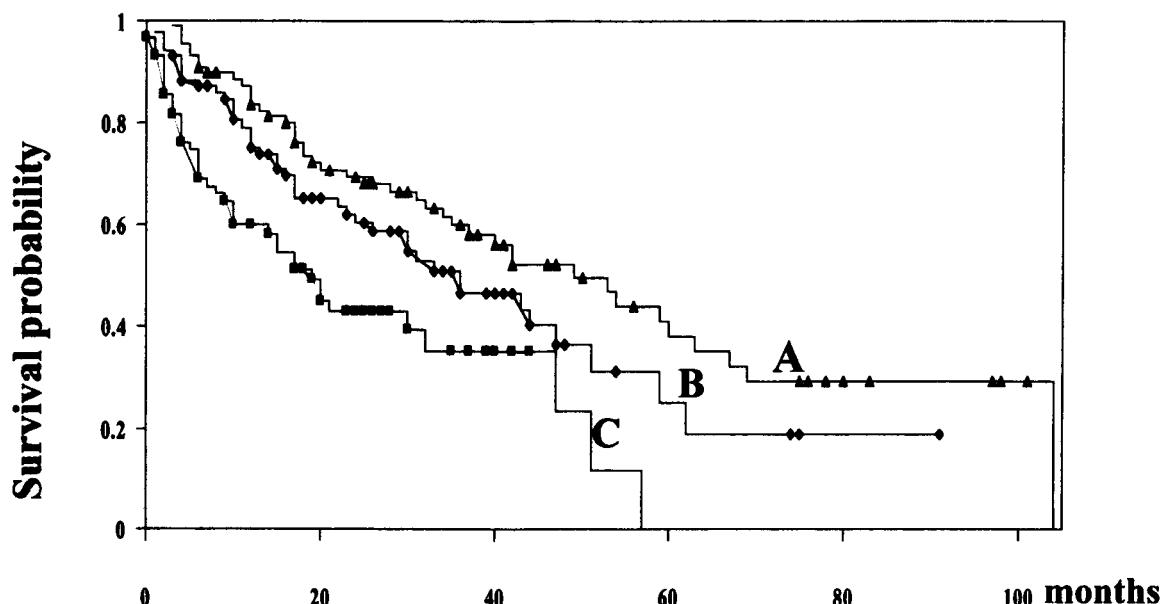
**Table 2.** Time (months) to the events in the 90 pediatric AIDS patients.

| Event                   | median | 95% CI    | range |
|-------------------------|--------|-----------|-------|
| Age at first symptom    | 4      | 3.0-5.0   | 1-60  |
| Age at AIDS diagnosis   | 13     | 11.0-15.0 | 2-100 |
| Birth to death          | 49     | 34.5-63.5 | 3-104 |
| First symptom to death  | 36     | 21.9-50.0 | 1-62  |
| AIDS diagnosis to death | 19     | 13.4-24.6 | 1-57  |

phylaxis for PCP-patients and patients who had clinical symptoms of HIV infection. Antiretroviral therapy was given to 39 patients after AIDS diagnosis with support from the Ministry of Public Health. Eleven cases received zidovudine (AZT), 9 received didanosine (ddI) and 19 received both AZT and ddI. Most patients, however, did not adhere to the prescribed therapy and they could not be followed-up.

At the end of the follow-up period, 27 patients could not be contacted and were censored, 18 patients were alive, 45 had died. The mean and median ages of children on the last follow-up visit were 33.5 and 29 months, respectively. Nineteen patients died while in hospital. The causes of death were pneumonia (11 cases), sepsis (6 cases) and intracranial hemorrhage (2 cases, one from thrombocytopenia and one from head injury).

The survival curves of the 90 patients from birth, age at first symptom and age at diagnosis of AIDS are shown in Fig. 1. The 1- and 2-year survival rates of these children from birth were 83.7 per cent (95% CI = 75.9% to 91.5%) and 69.4% (95% CI = 59.3% to 79.4%), respectively. The 1- and 2- year survival rates from the time of first symptom were 75.3 per cent (95% CI = 65.8% to 84.7%)



**Fig. 1.** Cumulative survival of 90 pediatric AIDS patients (A) from birth, (B) from the time of first symptom and (C) from AIDS diagnosis.

and 60.3 per cent (95% CI = 49.0% to 71.6%), respectively. After AIDS diagnosis, the corresponding survival rates were 59.7 per cent (95% CI = 48.4% to 71.1%) and 42.8 per cent (95% CI = 30.3% to 55.3%), respectively. Table 2 shows the median, range and 95 per cent CI of time in months for the development of the events.

## DISCUSSION

It is estimated that among perinatal HIV infected children, almost 14 per cent are diagnosed with AIDS in the first year of life and the median age at diagnosis is 4.1 years<sup>(3)</sup>. In our group of patients, the intervals from birth to the development of clinical symptoms of HIV infection and to the diagnosis of AIDS were relatively short. The median age of the first symptom and AIDS diagnosis were 4 and 13 months, respectively. The overall fatality was 50 per cent with half of the deaths occurring within 6 months of AIDS diagnosis.

We only addressed the survival of HIV-infected children, who developed AIDS and came to our hospital. Those born with HIV that did not develop AIDS were not included. Despite this limitation, the results of our study can serve as baseline data for comparison with more recently diagnosed patients for whom there are new treatments such as cotrimoxazole for PCP-prophylaxis and combination-antiretroviral therapy. The effectiveness of which, in terms of survival, will have to be evaluated against conventional treatment in randomized, controlled trials.

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## การรอดชีพของเด็กโรคเอดส์ : ประสบการณ์ของโรงพยาบาลมหาวิทยาลัยแห่งหนึ่ง ในภาคตะวันออกเฉียงเหนือของประเทศไทย

ผู้การของ ลุมพิกานนท์ พ.บ.\*  
ภาฯ โภศลารักษ์ พ.บ.\* มาลินี เหล่าไฟบูลย์ ว.ท.ม.\*\*

ผู้วิจัยได้ศึกษาการรอดชีพของผู้ป่วยเด็กโรคเอดส์ตั้งแต่แรกเกิด ตั้งแต่เริ่มมีอาการแรกของโรคและเมื่อมีอาการครบเกณฑ์การวินิจฉัยโรคเอดส์ (ตามเกณฑ์ขององค์กรอนามัยโลก) โดยเป็นเด็กที่ติดเชื้อเอดส์จากการด้าช่องมารับการรักษาที่โรงพยาบาลศรีนครินทร์ มหาวิทยาลัยขอนแก่นระหว่างปี พ.ศ.2532-2540 ติดตามผลการรักษาผู้ป่วยถึงวันที่ 30 เมษายน พ.ศ. 2541 ผู้ป่วยที่ไม่มาติดตามการรักษา ได้ใช้วิธีสอบถามอาการทางไปปรษณบัตร ผู้ป่วยจำนวน 90 ราย เป็นเพศชาย 46 ราย เพศหญิง 44 ราย อาการป่วยเริ่มแรกที่พบบ่อยที่สุด 2 อาการแรกคือ อุจจาระร่วงเรื้อรัง (36.7%) และการติดเชื้อของทางเดินหายใจส่วนล่างเรื้อรัง (34.4%) ครึ่งหนึ่งของผู้ป่วยทั้งหมดมีอาการแสดงของการติดเชื้อรังแรกเมื่ออายุ 4 เดือน (95% CI = 3 ถึง 5 เดือน) และมีอาการครบเกณฑ์การวินิจฉัยโรคเอดส์ในเด็กขององค์กรอนามัยโลกเมื่ออายุ 13 เดือน (95% CI = 11 ถึง 15 เดือน) ผู้ป่วย 39 รายได้รับการรักษาด้วยยาต้านไวรัสเอดส์ ได้แก่ยา AZT, ddI หรือยา 2 ตัว ร่วมกัน ผู้ป่วยเสียชีวิต 45 ราย ยังมีชีวิตอยู่ 18 ราย ไม่สามารถติดตามผู้ป่วยได้ 27 ราย ศึกษาอัตราการรอดชีพโดยใช้วิธีของ Kaplan และ Meier โดยใช้โปรแกรม SPSS เวอร์ชัน 6 โอกาสรอดชีพของผู้ป่วยเป็นเวลา 1 และ 2 ปี เมื่อเด็กเริ่มมีอาการแรกเท่ากับ 75.3% (95% CI = 65.8% - 84.7%) และ 60.3% (95% CI = 49.0% - 71.6%) โอกาส รอดชีพของผู้ป่วยเป็นเวลา 1 และ 2 ปี เมื่อเป็นเอดส์แล้วเท่ากับ 59.7% (95% CI = 48.4% - 71.1%) และ 42.8% (95% CI = 30.3% - 55.3%), ตามลำดับ

คำสำคัญ : การรอดชีพ, เด็กโรคเอดส์, ประเทศไทย

ผู้การของ ลุมพิกานนท์ และคณะ  
จดหมายเหตุทางแพทย์ ว 2543; 83: 652-656

\* ภาควิชาภูมิการเวชศาสตร์, คณะแพทยศาสตร์,

\*\* ภาควิชาชีวสัตว์และประชากวัศศาสตร์, คณะสาธารณสุขศาสตร์, มหาวิทยาลัยขอนแก่น, ขอนแก่น 40002