Children, AIDS and nutrition: an experience from Chiang Mai, Thailand

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This paper on the experience in Chiang Mai, Thailand, highlighted some of the features of the nature of the problem of human immunodeficiency virus infection. In Chiang Mai, positive pregnant women were 1%-2% and the perinatal transmission rate was approximately 40%. One particular characteristic of the HIV infection in Chiang Mai is the association with Penicillium marneffei skin infection. Cutaneous manifestations of HIV-infected children are similar to protein energy malnutrition. The syndrome is associated with skin eruption occurs in HIV-infected children, the disease deteriorates and the prognosis is worsened. In order to reduce morbidity and mortality in Thai HIV-infected children, early and aggressive nutrition support seems to be a crucial factor in their management. Thailand is in a difficult situation as the country is already trying to eradicate malnutrition in children, pregnant and lactating women and is now faced with the added burden of dealing with the secondary malnutrition resulting from the HIV/AIDS epidemic. A preliminary study of 24 HIV-positive children (12 boys, 12 girls) aged 1-26 months admitted to the Chiang Mai University Hospital was conducted. Eighty-eight percent of the subjects were malnourished, and a quarter had weight for age less than or equal to 50th (third degree protein energy malnutrition). First (2%) subjects had height less than or equal to 50th, second (10%) subjects had weight less than or equal to 50th, and third (80%) subjects had height and weight less than or equal to 50th (third degree protein energy malnutrition). Eighty-eight percent (n = 21) of the subjects were malnourished (Table 1), a quarter (n = 6) had percent weight for age less than or equal to 50th (third degree protein energy malnutrition - Table 1). Children who were admitted to hospital equal to 2,500g and 15 (63%) had between 2,501-3,000g.

Nutrition & AIDS and its consequence in Thailand

The vicious cycle of infection and malnutrition is played out constantly in many parts of Thailand. The clinical syndrome of AIDS adds further to this picture. Pre-existing malnutrition is common in Thai children and HIV infection may lead to further protein malnutrition. The effects of the add. Common clinical features of HIV-infected children are similar to protein energy malnutrition and include fever, diarrhea, failure to thrive, fat and lactose malabsorption, immunosuppression and other specific nutrient deficiencies such as vitamin A, B1, B2, and zinc. Since malnutrition occurs in HIV-infected children, the disease deteriorates and the prognosis is worsened. In order to reduce mortality and morbidity in Thai HIV-infected children, early and aggressive nutrition support seems to be a crucial factor in their management. However, Thailand is in a difficult situation as the country is already trying to eradicate malnutrition in children, pregnant and lactating women and is now faced with the added burden of dealing with the secondary malnutrition resulting from the HIV/AIDS epidemic.

A Chiang Mai experience

There are two major modes of transmission of HIV to infants and children, vertical transmission and blood transmission. Most children who are infected have received virus through the natural mode of vertical transmission. Those children infected via blood transfusion were mainly thalassemia cases. Haemophilia is uncommon in Chiang Mai. The prevalence rate was observed to be about 3% in private children’s hospital in Chiang Mai, but it is thought to be higher in the general population. In clinical practice, screening for HIV infection is now considered routine for any child who presents with a fever and chronic diarrhea.

Methods

A study of 24 HIV positive children admitted to the Chiang Mai University Hospital, the largest hospital (1,500 beds) in the northern part of Thailand, was conducted. All patients were admitted for further management, without prior knowledge of being HIV positive, with symptoms of fever, failure to thrive, pneumonia, hepatosplenomegaly or a combination of these diseases. All were diagnosed as having a positive HIV test on admission. There were 12 boys and girls in the study (AIDS complaints) and the mean age was 7 months (SD: 6 months; range: 1-26 months). Intensive nutrition support was given to all patients because in HIV infection, there is not only fat and carbohydrate malabsorption but also other specific nutrient deficiencies. Nutrition counselling to the parents on healthy eating was provided in the hospital. The nutritional considerations are presented here.

Results

The mean age of the mother was 23 years (SD: 4.15; range: 17-34 y) and of the fathers was 30.2 years (SD: 5.71; range: 21-41 y). Of the 24 study mothers, 4 were involved in prostitution and the rest were either housewives or labourers. All mothers and children had normal white blood cell counts. Thirteen (54%) of the patients were admitted to the hospital. The 24 study fathers were all heterosexual and all had a history of visiting prostitutes. All the fathers were labourers and only 2, both of whom had partners who were prostitutes, tested negative for HIV. However, all the parents studied were asymptomatic. The mean birthweight of the 24 subjects was 2,700g (SD: 416g; range: 1900-3580g). The average birthweight for normal Thai infants is 3,060g for males and 2,950g for females (SD: 134g; range: 2.67-7.7kg). The mean percent weight for age (% W/A), based on the National Centre for Health and Statistics (NCHS) reference data, was 72% (SD: 14%; range: 44-105%). Eighty-eight percent (n = 21) of the subjects were malnourished (Table 1), a quarter (n = 6) had percent weight for age less than or equal to 50th (third degree protein energy malnutrition - Table 1). Children who were admitted to hospital equal to 2,500g and 15 (63%) had between 2,501-3,000g.

Discussion

In the present study malnutrition was an important factor associated with paediatric HIV infection. This association was mostly demonstrated by the high prevalence of HIV-infected children. Parents were interviewed about the general eating habits and food intake of these families. It was observed that, for the parents, nutrition was not an important issue and this was probably related to poverty. In Chiang Mai, the prevalence rate of AIDS was 0.01%. Paediatric HIV infection is increasing rapidly and Chiang Mai will have one of the highest prevalence rates of paediatric HIV infection in Thailand. To date, over 100 cases of paediatric HIV and 400 cases of adult HIV have been admitted to the Chiang Mai University Hospital. Nutrition plays an important role in HIV infection. Paediatric research is urgently needed in various areas of nutrition and paediatric HIV/AIDS to improve clinical care. A case history of paediatric AIDS was also shown.

Introduction

Paediatric HIV infection has been associated with transmission from contaminated blood products. With improved screening and processing of blood products, future spread of HIV via such routes is unlikely. Instead, the world is experiencing a still rising prevalence of HIV infection in women. Vertical transmission of infection to the infants of these women will set the scene for the nature of paediatric HIV infection that we will experience. This paper on the experience of paediatric HIV infection in Thailand highlighted some of the features of the changing nature of the epidemic. While the health and living standards of developing countries cannot be compared with those in Thailand, many other features may have similarities.

Epidemiology

Acquired Immune Deficiency Syndrome (AIDS) was first reported in children in 1982 in the United States and in 1984 in Europe. The World Health Organisation (WHO) has estimated that more than 12 million people in 150 countries, are currently infected with the Human Immunodeficiency Virus (HIV). Over one million of these are children. In the United States and Europe, infants and children under 13 years of age account for only two percent of the total number of AIDS cases. This number is expected to change dramatically in the developing countries such as Asia, Africa and the Caribbean, children account for 15-20% of AIDS cases. As HIV continues to spread into the heterosexual population, it is expected that paediatric AIDS will become an ever greater problem in both developed and developing countries.

Thailand, with a population of 60 million, had at least 600,000 HIV-infected people by the end of 1994. However, 90% of these were still mothers. In Chiang Mai, the northern regional centre, has a population of 1.5 million and the highest prevalence of HIV infection in Thailand. In Chiang Mai, the first full blown AIDS case (a male prostitute) was reported by the Chiang Mai University Hospital in 1987 (the third reported case of AIDS in Thailand). The incidence of positive HIV tests in pregnant women was 1%-2% and the perinatal transmission rate was estimated to be approximately 40%. In 1989 the first case of a positive HIV test in a child (from a hill tribe) in Chiang Mai was documented. One particular characteristic of HIV infection in Chiang Mai, Thailand is the association of Penicillium marneffei skin infection and HIV infection. Chiang Mai is an area where the prevalence of Penicillium marneffei infection in the HIV-infected individuals has been reported to be one of the highest in the world.

In Thailand, it is common for men to visit prostitutes, usually for their first sexual experience at around 14 or 15 and even after marriage. Much of the spread of infection to women and children stems from this practice. Prostitution in Thailand is driven by simple poverty, as well as cultural practices. It seems that Chiang Mai is facing with an increasing problem of an HIV positive population in the near future and that the whole country is facing an incredible AIDS problem. It has been estimated that in the next 10-15 years, Thailand will lose about 10% of the workforce aged 15-25 years from AIDS with an increasing number of paediatric AIDS. Thailand is actively addressing the issue of AIDS. Countries such as India, Indonesia, Nepal and Vietnam the seroprevalence rate is currently unknown.

Paediatric nutrition problems in Thailand

Even though Thailand is a major agricultural exporting country, problems such as hunger, malnutrition, diarrhea, dysentery, tuberculosis, dengue, leprosy, malaria, tuberculosis, and other nutrition deficiencies are major problems, particularly among preschool & school-aged children, pregnant and lactating women. The major reason for this is because of poor food habits.

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Table 1. Number of subjects according to their nutritional status (% W/A on admission, infants under 2 years of age and children 2 years of age and older)

<table>
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<th>% W/A</th>
<th>Dead</th>
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Prasong Tienboon* MD(Chiang Mai), Mark L Wahlqvist* MD(Adel), MD(Uppsala), FRACP

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This paper on the experience in Chiang Mai, Thailand, highlighted some of the features of the nutrition and the human immunodeficiency virus infection. In Chiang Mai, Thailand, the incidence of positive HIV tests in pregnant women was 1-2% and the perinatal transmission rate was approximately 40%. One particular characteristic of HIV infection in Chiang Mai is the association of Penicillium marneffei skin infection. Genital, child laborers of HIV-infected children are similar to protein energy malnutrition (PEM) in preschool children. In Chiang Mai, there is a difference in the situation as the country is already trying to eradicate malnutrition in children, pregnant and lactating women and is now faced with the added burden of dealing with the secondary malnutrition resulting from the HIV/AIDS epidemic. A preliminary study of 24 HIV positive children (12 boys, 12 girls) aged 1-26 months admitted to the Chiang Mai University Hospital was conducted. Eighty-eight percent of the subjects were males, and a quarter had weight for age less than or equal to 50% (third degree protein energy malnutrition). Five (21%) subjects had weight less than or equal to 10% of the population. In 100 cases of pediatric HIV have been reported to the Chiang Mai University Hospital. Nutrition plays an important role in HIV infection. Further research is urgently needed in various areas of nutrition and pediatric HIV/AIDS to improve clinical care. A case history of pediatric AIDS was also shown.

Introduction
Paediatric HIV infection has been associated with transmission from contaminated blood products. With improved screening and processing of blood products, future spread of HIV via such routes is unlikely. Instead, the world is experiencing a still rising prevalence of HIV infection in women. Vertical transmission of infection to the infants of these women will set the scene for the fate of paediatric HIV infection that we will experience. This paper on the experience of paediatric HIV infection in Thailand highlighted some of the features of the changing nature of the epidemic. Whilst the health and living standards of the developed countries cannot be equated with those in Thailand, many other features may have similarities.

Epidemiology
Acquired Immune Deficiency Syndrome (AIDS) was first reported in children in 1982 in the United States and in 1984 in Europe. The World Health Organisation (WHO) has estimated that more than 12 million people in 150 countries, are currently infected with the Human Immunodeficiency Virus (HIV). Over one million of these are children. In the United States and Europe, infants and children under 13 years of age for account only two percent of all HIV infections, while in the developing countries such as China, Africa and the Caribbean, children account for 15-20% of AIDS cases. As HIV continues to spread into the heterosexual population, is expected that paediatric AIDS will become an ever greater problem in both developed and developing countries.

Thailand, with a population of 60 million, had at least 600,000 HIV-infected people at the end of 1994. However, 90% of these were still in the rural areas of northern Thailand. The northern regional centre, has a population of 1.5 million and the highest prevalence of HIV infection in Thailand. In Chiang Mai, the first full blown AIDS case (a male prostitute) was reported by the Chiang Mai University Hospital in 1987 (the third reported case of AIDS in Thailand). The incidence of positive HIV tests in pregnant women was 1-2% and the perinatal transmission rate was estimated to be approximately 40%. In 1989 the first case of a positive HIV test in a child (from a hilltribe) in Chiang Mai was documented. One particular characteristic of HIV infection in Chiang Mai, is the association of Penicillium marneffei skin infection and HIV infection. Chiang Mai is an area where the prevalence of Penicillium marneffei infection in the HIV population has been reported to be one of the highest in the world. In Thailand, it is common for men to visit prostitutes, usually for their first sexual experience at around 14 or 15 and even after they are married. As such, there has been a high rate of infection in women and children stems from this practice. This practice is driven by simple poverty as well as cultural practices. It seems that Chiang Mai is faced with an increasing problem of an HIV positive population in the near future and that the whole country is facing an incredible AIDS problem. It has been estimated that in the next 10-15 years, Thailand will lose about 10% of the workforce aged 25-35 years from AIDS with an increasing number of paediatric AIDS. Thailand is actively addressing the issue of AIDS. In countries such as India, Indonesia, Nepal and Vietnam the seroprevalence rate is currently unknown.

Paediatric nutrition problems in Thailand
Even though Thailand is a major agricultural exporting country, sugar, rice, corn, soy, chicken, beef, pork, fish (and fruits), nutritional deficiencies are major problems, particularly among preschool & school-aged children, pregnant and lactating women as well as elderly people because of poor food habits.

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Nutrition & AIDS and its consequence in Thailand
The virulent cycle of infection and malnutrition is played out constantly in many parts of Thailand. The clinical syndrome of AIDS adds further to this picture. Pre-existing malnutrition is common in Thai children and HIV infection may potentiate pre-existing malnutrition. The effects of the are additive. Common clinical features of HIV-infected children are similar to protein energy malnutrition and include fever, diarrhea, failure to thrive, fat, and lactose malabsorption, immunosuppression and other specific nutrient deficiencies such as vitamin A, B1, B2, zinc and selenium. Once malnutrition occurs in HIV-infected children, the disease deteriorates and the prognosis is worsened. In order to reduce morbidity and mortality in Thai HIV-infected children, early and aggressive nutrition support seems to be a crucial factor in their management. However, Thailand is in a difficult situation as the country is already trying to eradicate malnutrition in children, pregnant and lactating women and is now faced with the added burden of dealing with the secondary malnutrition resulting from the HIV/AIDS epidemic.

A Chiang Mai experience
There are two major modes of transmission of HIV to infants and children, vertical transmission and blood transfusion. Most children who have been infected via the sexual route of infection, is vertical transmission. Those children infected via blood transfusion were mainly thalassemia cases. Haemophilia is uncommon in Chiang Mai. The seroprevalence rate was observed to be about 5% in one private children’s hospital in Chiang Mai, but it is thought to be higher in the general population. In clinical practice, screening for HIV infection is now considered routine for all children who presents with a fever and chronic diarrhea.

Methods
A study of 24 HIV positive children admitted to the Chiang Mai University Hospital, the largest hospital (1,500 beds) in the northern part of Thailand, was conducted. All patients were admitted for further management, without prior knowledge of being HIV positive, with symptoms of fever and respiratory failure to thrive, pneumonia, haematoosplenomegaly or a combination of these diseases. All were diagnosed as having a positive HIV test on admission. There were 12 girls and boys in the study at 14 (14%) death. The mean age on admission was 7 months (SD: 6 months; range: 1-26 months). Intensive nutrition support was given to all patients because of HIV infection, there is not only fat and carbohydrate malabsorption but also other specific nutrient deficiencies. Nutrition counselling to the parents on healthy eating was provided in the hospital. The nutritional considerations are presented here.

Results
The mean age of the mothers was 23.9 years (SD: 4.15 years; range: 17-34 y) and of the fathers was 30.2 years (SD: 5.71 years; range: 21-41 y). Of the 24 study mothers, 4 were involved in prostitution and the rest were either housewives or labourers. All mothers and children born when the father was 20 years old or older had previously been admitted to the hospital. The 24 study fathers were all heterosexual and all had a history of visiting prostitutes. All the fathers were labourers and only 2, both of whom had partners who were prostitutes, tested negative for HIV. However, all parents studied were asymptomatic. The mean birthweight of the 24 subjects was 2,700g (SD: 416g; range: 1900-3580g). The average birthweight for normal Thai infants is 3,068g, and for girls it was 3,452g (SD: 134g; range: 2,667-7 kg). The mean percent weight for age (% W/A), based on the National Centre for Health and Statistics (NHIS) reference data, was 72% (SD: 14% range: 44-105%). Eighty-eight percent (n = 21) of the subjects were malnourished (Table 1), a quarter (n = 6) had percent weight for age less than or equal to 50% (third degree protein energy malnutrition - Table 1). The average weight for age was equal to 2,505g and 15 (63%) had birthweights between 2,501-3,000g.

Table 1: Number of subjects according to their nutritional status (% W/A on admission and at death)

<table>
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<th>%W/A</th>
<th>Dead</th>
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<tr>
<td>Total</td>
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<td>35</td>
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Discussion
In the present study malnutrition was an important factor associated with paediatric HIV infection. This association was mostly due to nutritional deficiencies by the HIV-infected children. Parents were interviewed about the general eating habits and food intake of these families. It was observed that, for the parents, nutrition was not an important issue and this was probably related to poor income. HIV was limited and also had poor nutrition and poverty. Paediatric HIV infection is increasing rapidly and Chiang Mai will have one of the highest prevalence rates of paediatric HIV infection in Thailand. To date, over 100 cases of paediatric HIV and 400 cases of adult HIV have been admitted to the Chiang Mai University Hospital. Nutrition plays an important role in HIV infection. Preventive research is urgently needed in various areas of nutrition and paediatric HIV/AIDS to improve clinical care. In Thailand, strategies for improving nutritional status in HIV infected children are hampered by problems such as pre-existing malnutrition, lack of nutritional knowledge and poverty.

Paediatric AIDS in Chiang Mai - a case history
A 2-month-old Thai girl was admitted to the Chiang Mai University Hospital within one week of birth. History of diarrhoea. From the age of 2 months she had diarrhoea, it was noticed that she had a fluctuating fever. An upper respiratory tract infection was diagnosed by a general practitioner. As the child had a chronic cough, the baby’s mother was admitted to the hospital with a history of having had a baby who had a similar problem. One week later the baby developed diarrhoea with frequent mucoid loose yellowish-green stools, 5-6 times a day. In addition to breast milk, the parents gave her some boiled rice to help treat the diarrhoea. However, the infant’s condition deteriorated and she was taken to the hospital. She was a first born, at 39 weeks gestation. Her birthweight was 3,280g, length 48cm, occipitofrontal circumference (OFC) 33cm, term and also small for weight. Her mother was a HIv infected child who was fed with commercial infant formula (Lactogen), boiled rice, mashed banana twice a day. Routine BCG and Hepatitis B vaccination had been given at birth. Both parents
were 23 years old and were diagnosed HIV positive when the
mother was 3 months pregnant. They were both currently
asymptomatic. The father was a labourer and, like many Thai
men, frequently visited prostitutes. On admission, the baby
was febrile with a temperature of 38°C, pulse rate 120 per
minute, respiratory rate 40 per minute and blood pressure 70/40
mmHg. The weight was 3.7900, (percent weight for age 97%,
percent weight for height 95% and percent height for age 98%).
The OFC was 36.5 cm and percent OFC for age was 99%. She
appeared moderately dehydrated with sunken anterior fontanelle
and was drowsy. She was mildly icteric but there was no pallor.
There was generalised non-tender lymphadenopathy. Four
umbilicated infected ulcers were present on her face. She had oral
thrush. Hepatosplenomegaly was present. Further examination
was unremarkable.

Laboratory investigation :
- Enzyme-linked immunosorbent assay (ELISA) test for HIV
  was positive.
- Direct smear from face ulcer was positive for mycelium and
  on culture Penicillium marneffei was identified.
- Liver function tests: GOT 180 mg/dl, GPT 150 mg/dl, direct
  bilirubin 1.2 mg/dl, total bilirubin 2.9 mg/dl.
- Stool examination: mucous, yellowish and green loose stools
  with fat droplets. Occult blood was negative and no parasites
  were detected.
- Full blood count: haemoglobin 10.6 g/dl, haematocrit 32%,
  white blood cell count 14,500 x103 mm-3 with neutrophil 46%,
  lymphocyte 54%. The platelet count was 237,000 x103 mm-3
  and normal appearance of red blood cell on the smear.
- Urine examination: yellow, clear, pH 6, specific gravity 1.003,
  no casts, no white blood cell nor red blood cell. Protein and sugar
  were negative.

Discussion
This baby is an example of a Thai AIDS case born to a HIV
positive family. The characteristics were as follows: The parents
are young adults who are both HIV positive and currently
asymptomatic. The heterosexual father frequently visited
prostitutes and had transmitted the virus to his wife. The family is
of poor socioeconomic status with limited education and limited
financial resources. Knowledge of infant feeding was poor, as
exemplified by feeding a young baby solids, in response to illness.
The infant was born at term with a normal birth weight. She
appeared to be in a reasonable nutritional state as both weight
and height were still within the normal range for age. Her presentation
with fever, diarrhea and generalized lymphadenopathy are
common presenting symptoms of pediatric AIDS in Thailand.
Penicillium marneffei skin infections are recognised as being
associated with AIDS in Thailand. This baby’s diarrhea was
associated with fat malabsorption. She is at risk of development
of nutritional deficiencies and failure to thrive in the future. The
absence of these at presentation probably relate to the short period
of illness.

Further management of this child and family will need to
address issues such as nutrition education and aggressive
support. Financial support may also be necessary for this family
to achieve these goals.

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โรคและการกับผู้ป่วยเด็กโรคเอดส์

ประเทศไทย, ผู้ป่วยเด็กโรคเอดส์มักได้รับเชื้อมาจากแม่ โดยมีผู้ป่วยเด็กโรคเอดส์

ถูกคัดแยกออกจากสังคมไทยให้แพทย์แยกแบบมาร์เกอร์ 1-2 ที่จะส่งเข้าสู่ด้านการแพทย์

การเป็นโรคเอดส์ประมาณ 40% ของโรงเรียนได้ทำการศึกษาการตัดสินใจการนับจำนวนของผู้ป่วยที่

โรคเอดส์จำแนก 24 คน (ชาย 12, หญิง 12) อายุ 1-26 ปี. โรคเอดส์ในไทยพบมากกว่า 88%. ของผู้ป่วยมีการระบาดกว้างแพร่ลักษณะ

โรคเอดส์ในไทย. ผู้ป่วยโรคเอดส์ประมาณ 21% ของผู้ป่วยมีอาการหลอกหนักกว่า 2,500 กม.

ดังนั้น, โรคเอดส์เป็นอันตรายสำหรับผู้ป่วยโรคเอดส์ ผู้ป่วยไทยที่มีอาการเด็กเอดส์

ราชินี อาร์เนทติส (AIDS) และการผู้ป่วย ประจำชีวิต (Chiang Mai) ที่มีการทดสอบ

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โรคและการกับผู้ป่วยเด็กโรคเอดส์

ประเทศไทย, ผู้ป่วยเด็กโรคเอดส์มักได้รับเชื้อมาจากแม่ โดยมีผู้ป่วยเด็กโรคเอดส์

ถูกคัดแยกออกจากสังคมไทยให้แพทย์แยกแบบมาร์เกอร์ 1-2 ที่จะส่งเข้าสู่ด้านการแพทย์

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兒童、AIDS和營養：

泰國清邁市（Chiang Mai）的經驗

摘要

該文重點討論了泰國清邁市兒童艾滋病的特徵。清邁市孕婦 HIV 陽性率是 1-

2%；產期的傳播率約 40%。清邁市 HIV 傳染是與青霉素皮試有關。HIV 感染兒

童的一般臨床特徵和蛋白質能量營養不良相似。HIV 感染兒童一旦出現營養不良

病情隨之惡化，預後不良。為了減少泰國 HIV 感染兒童的發病率和死亡率，

早期積極的營養補充在病情處理上是一個重要因素。泰國已試圖根除兒童、孕

婦和幼兒營養不良。但目前又面對 HIV/AIDS 流行而引起的營養不良，

因而處境是困難的。清邁大學醫學院選取了年齡 1-26 個月的 24 位 HIV 陽性兒童

（12 男童，12 女童）作初步研究，其中 88% 研究對象為營養不良，按體重、年

齡計算，有四分之一兒童低於或相當於正常兒童的 60%（三度蛋白質 - 能量營養

不良）。其中 5 個對象（21%）出生體重少於或相當於 2500 克。目前清邁大學

醫學院接收了多例 HIV 兒童，營養在 HIV 感染中起重要作用，從不同角度進一步

研究營養和改進 HIV/AIDS 兒童的臨床護理是急需的。該文報告了兩例兒童受

滋病。
were 23 years old and were diagnosed HIV positive when the mother was 3 months pregnant. They both were currently asymptomatic. The father was a labourer and, like many Thai men, frequently visited prostitutes. On admission, the baby was febrile with a temperature of 38°C, pulse rate 120 per minute, respiratory rate 40 per minute and blood pressure 70/40 mmHg. The weight was 3.79 kg, (percent weight for age 97%, percent height for weight 95% and percent height for age 98%).

The OFC was 36.5 cm and percent OFC for age was 99%. She appeared moderately dehydrated with sunken anterior fontanelle and was drowsy. She was mildly icteric but there was no pallor. There was generalised non-tender lymphadenopathy. Few umbilicated infected ulcers were present on her face. She had oral thrush. Hepatosplenomegaly was present. Further examination was unremarkable.

**Laboratory investigations**

- Enzyme-linked immunosorbent assay (ELISA) test for HIV was positive.
- Direct smear from face ulcer was positive for mycelium and on culture Penicillium marneffei was identified.
- Liver function tests: GOT 180 mg/dl, GPT 150 mg/dl, direct bilirubin 1.2 mg/dl, total bilirubin 2.9 mg/dl.
- Stool examination: mucus, yellowish and green loose stools with fatty droplets. Occult blood was negative and no parasite ova were detected.
- Full blood count: haemoglobin 10.6 g/dl, haematocrit 32%, white blood cell count 14,500/μm³ with neutrophil 46%, lymphocyte 54%. The platelet count was 237,000/mm³ and normal appearance of red blood cell on the smear.
- Urine examination: yellow, clear, pH 6, specific gravity 1.003, no casts, no white blood cell nor red cell. Protein and sugar were negative.

**Discussion**

This baby is an example of a Thai AIDS case born to a HIV positive family. The characteristics were as follows: The parents are young adults who are both HIV positive and currently asymptomatic. The heterogeneous father frequently visited prostitutes and had transmitted the virus to his wife. The family is of poor socio-economic status with limited education and limited financial resources. Knowledge of infant feeding was poor, as exemplified by feeding a young baby solids, in response to illness. The infant was born at term with a normal birth weight. She appeared to be in a reasonable nutritional state as both weight and height were still within the normal range for age. Her presentation with fever, diarrhoea and generalized lymphadenopathy are common presenting symptoms of paediatric AIDS in Thailand. Penicillium marneffei skin infections are recognised as being associated with AIDS in Thailand. This baby’s diarrhoea was associated with fat malabsorption. She is at risk of development of nutritional deficiencies and failure to thrive in the future. The absence of these at presentation probably relate to the short period of illness.

Further management of this child and family will need to address issues such as nutrition education and aggressive nutrition support. Financial support may also be necessary for this family to achieve these goals.