



# Hospitalizations associated with oral lesions in perinatally HIV-infected children

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Previous reports indicate that oral lesions (OL) are a frequent complication of pediatric HIV infection.<sup>1-7</sup> Information regarding the relative morbidity associated with OL has not been reported. Accordingly, this report assesses the relative morbidity due to OL in pediatric HIV infection.

## Methods

### Patient population

The study population consisted of 26 HIV-infected children who were patients of the Pediatric HIV Clinic at Strong Memorial Hospital (SMH) in Rochester, NY. The subjects were followed for a mean duration of  $28.8 \pm 10.1$  months during the course of the 36-month study period (April 1, 1993 to March 31, 1996). HIV infectivity was defined as a positive ELISA (HIV) confirmed by Western Blot for patients 15 months old or older and positive HIV culture or polymerase chain reaction (PCR) for patients younger than 15 months of age. The patient population comprised 12 males and 14 females ranging in age from 2 months to 13.5 years (mean:  $4.8 \pm 3.6$  years) at their time of entry into the study. All of the patients acquired HIV via maternal transmission and were taking antiretroviral drugs during the study period.

### Assessment of morbidity

Duration of hospitalization due to HIV-related complications was used as an outcome measure to assess morbidity. Data were generated by retrospective review of the medical record of each patient in the study population. The number and duration of HIV-related hospitalizations that occurred during the study interval and admitting diagnoses were recorded. When multiple admitting diagnoses were listed, medical records were examined to determine whether an admission could be attributed to an OL. If no OL was included in the admitting diagnoses, the primary diagnosis listed was used as the admitting diagnosis. The mean episode duration of OL vs. non-OL hospitalizations was compared using the Wilcoxon Test with an alpha at 0.05. Values more than two standard deviations away from the mean value were considered out-

liers and removed from the analysis.

In addition, in order to estimate the impact of duration of hospitalization to cost, the cost of per diem bed utilization for the study population was determined using the October, 1996 SMH billing schedule which follows: \$685 per day for a standard pediatric bed and \$1680 per day for a Pediatric Intensive Care Unit (PICU) bed. The relative contribution of hospitalizations due to OL to total estimated cost of per diem bed utilization for the study population was determined.

## Results

### Duration of hospitalization

The table lists the types and distribution of OL and non-OL admitting diagnoses and the associated duration of hospitalization. During the study interval, 15 of the 26 (57.7%) patients were hospitalized on 28 separate occasions for a total of 365 hospital days. OL accounted for seven of these hospitalizations for a total of 22 hospital days. Seven children had one hospitalization, seven had two hospitalizations, and one child had seven hospitalizations. The duration of hospitalization ranged from 2 to 197 days. After exclusion of two outlier observations (the 197-day hospitalization and the child with seven hospitalizations), 20 hospitalizations were considered for analysis. The mean episode duration for the 13 non-OL hospitalizations was  $9.2 \pm 7.0$  days (range 2-28) and the mean episode duration for the seven OL hospitalizations was  $3.1 \pm 1.1$  days (range 3-9). Statistical analysis indicated that these differences were significant (Wilcoxon test,  $P < 0.02$ ).

### Cost of hospitalization

The estimated cost of per diem bed utilization for the patient population during the study interval was \$272 910 (23 PICU bed days and 342 standard pediatric bed days). OL admissions accounted for 22 days of standard pediatric bed utilization for a cost of \$15 070 ( $\$685$  per day  $\times$  22 days). Stated differently, hospitalizations due to OL accounted for 5.52% of the estimated cost of per diem bed utilization for the patient population during the study period.

## Discussion

OL are a frequent finding during the course of pediatric HIV infection and may serve as markers of infection and predictors of progression of HIV disease to AIDS.<sup>1-7</sup> In addition, OL may be a source of discomfort that negatively impacts on quality of life. On this basis, supportive dental care for HIV-infected children is an important component of comprehensive medical care.

The findings of this report indicated that OL did not contribute significantly to morbidity (as measured by duration of hospitalization) in this Rochester, NY-population of 26 HIV-infected children. In addition, the estimated cost of per diem bed utilization due to OL admissions was minimal relative to the estimated cost of per diem bed utilization due to non-OL admissions. Although this cost analysis underestimates the true cost of hospitalization as other cost factors were not included (e.g., imaging and laboratory studies), this observation still suggests that the cost of hospitalization due to OL is small relative to the cost of hospitalization due to non-OL during the course of pediatric HIV infection.

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**TABLE. DISTRIBUTION OF ADMITTING DIAGNOSES AND ASSOCIATED DURATION OF HOSPITALIZATIONS**

Admitting Diagnosis	Number of Admissions	Total Duration of Hospitalization (Days)
<b>NON-OL</b>		
Varicella	6	45
<i>Pneumocystis carinii</i> pneumonia	5	48
Sepsis*	2	6
Dehydration	2	4
Burkitt's lymphoma	1	197
Aspergillosis	1	28
Fever of unknown origin*	1	7
Lymphadenitis	1	3
Failure to thrive	1	3
End stage AIDS	1	2
<b>SUBTOTAL</b>	21	343
<b>OL</b>		
Oral candidiasis with esophageal extension	2	9
Oral candidiasis with associated candidemia	2	4
Major aphthous ulceration	2	6
HSV stomatitis	1	3
<b>SUBTOTAL</b>	7	22
<b>TOTAL</b>	28	365

\* Dental evaluation of these 3 patients during their hospital course ruled out an odontogenic focus.

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