



ORAL DISEASES VARY BY HIV EXPOSURE AMONG KENYAN CHILDREN

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Background

- Although the prevalence of Human Immunodeficiency Virus (HIV) has significantly declined globally, largely due to increased access to antiretroviral therapy (ART) and effective prevention strategies, the disease remains a significant public health challenge, particularly in sub-Saharan Africa.
- Oral manifestations often are an early marker of HIV progression and oral health professionals may serve as gatekeepers in identifying worsening health status.

Perinatal Transmission



Figure 1: Perinatal transmission. 90% of pediatric HIV cases occur through mother to child transmission (MCT). With appropriate ART regimens, transmission rate may be as low as 1%

Objectives and Methods

- Determine the impact of HIV exposure and treatment on 3 to 4yo Kenyan children on oral disease prevalence
- A baseline analysis of a longitudinal study through University of Washington and Jaramogi Oginga Odinga Teaching & Referral Hospital
- 360 3 to 4yo: 120 HIV infected (HIV), 120 HIV exposed & uninfected (HEU), 120 HIV unexposed & uninfected (HUU)
- Trained and calibrated pediatric dentists completed all oral examinations and diagnoses
- ANOVA, chi-squared, logistic regression completed (p<0.05)

Variables	Total 360 (%)	HIV 120	HEU 120	HUU 120	p-value
Sex					
Female	183 (50.8)	58 (48.3)	61 (52.5)	62 (51.67)	0.7918
Age					
Months	3.4 (SD=0.5)	3.4 (SD=0.5)	3.4 (SD=0.5)	3.3 (SD=0.5)	0.3501
School					
Public	78 (21.67)	29 (24.17)	32 (26.67)	17 (14.17)	0.007
Private	170 (47.22)	46 (38.22)	52 (43.33)	72 (60.00)	
No school	112 (31.11)	45 (37.50)	36 (30.00)	31 (25.83)	
Location					
Urban	127 (35.47)	39 (32.50)	41 (34.17)	47 (39.83)	0.6973
Peri-urban	57 (15.92)	21 (17.50)	21 (17.50)	15 (12.71)	
Rural	174 (48.60)	60 (50.00)	58 (48.33)	56 (47.46)	
Duration of ART Treatment					
<2mo or less	20 (5.67)				
13-24mo	18 (5.00)				
25-36mo	37 (10.43)				
37-48mo	37 (10.43)				
49mo or more	8 (6.67)				
Full ART regimen					
PI-based	78 (65.00)				
NRTI-based	42 (35.00)				
Current ART regimen					
PI-based	0 (0.00)				
NRTI-based	120 (100.00)				
Total load (copies/mL)					
<VL c/tb, Not detectable	78 (65.00)				
<VL 50-400	22 (18.33)				
<VL 401+	20 (16.67)				
Adherence					
>90%	17 (14.17)				
90-94%	27 (65.16)				
<90%	20 (21.67)				
Other Medications					
Septin	20 (25.00)				
Anti-TB medication	3 (2.5)				
Duration of ART Treatment					
Time in months	29.89 (14.38)				
Initial ART					
PI based regimen (only PI/PI+)	39 (32.5%)				
NRTI-based regimens (all other meds)	81 (67.5%)				

Table 1: Cohort characteristics. The mean age of the 360 children was 3.4 years and 51% were female. Most children were enrolled in private school (47%) and lived in rural (49%) areas. Among HIV children, all were taking a NRTI-based ART regimen, 93% of reported viral loads under 1,000 copies/mL and ART treatment adherence threshold of above 90% was met by 78% of the patients.

Results

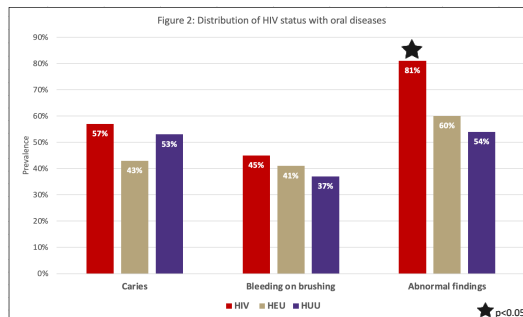


Figure 2: Distribution of HIV status with oral diseases. HIV children had significantly greater prevalence (81%) of abnormal findings (submandibular lymphadenopathy, parotid gland enlargement, geographic tongue, among others) compared to HEU and HUU cohorts. There was no significant differences in salivary pH, dmft/dmfs scores, dental caries, dental plaque or gingival bleeding upon brushing found between cohorts.

Characteristics	Caries			Bleeding			Abnormal findings*			All conditions**		
	OR	95% CI of OR	P-value	OR	95% CI of OR	P-value	OR	95% CI of OR	P-value	OR	95% CI of OR	P-value
HIV Status												
HIV+	1.12	(0.67, 1.88)	0.6687	1.4	(0.83, 2.36)	0.2051	3.89	(2.15, 7.09)	<0.0001	4.63	(1.93, 8.38)	0.0002
HEU	0.65	(0.39, 1.09)	0.102	1.19	(0.71, 2.01)	0.5098	1.34	(0.79, 2.27)	0.2764	1.31	(0.73, 2.35)	0.3651
HUU (ref)												
Sex												
Female	1.29	(0.85, 1.96)	0.2403	1.13	(0.74, 1.72)	0.5807	1.28	(0.81, 2.03)	0.2851	1.21	(0.72, 2.05)	0.4703
Male (ref)												
School												
No	1.03	(0.65, 1.63)	0.8948	1.01	(0.64, 1.59)	0.9823	1.04	(0.65, 1.72)	0.867	1.09	(0.62, 1.94)	0.759
Yes (ref)												
Location												
Rural	1.24	(0.78, 1.97)	0.3582	0.75	(0.47, 1.19)	0.2188	0.63	(0.38, 1.04)	0.07	0.79	(0.44, 1.42)	0.4281
Peri-urban	2.03	(1.09, 3.79)	0.0253	0.78	(0.42, 1.44)	0.4258	0.3	(0.16, 0.57)	0.0003	0.35	(0.17, 0.69)	0.0029
Urban (ref)												

*Abnormal findings include: submandibular lymphadenopathy, parotid gland enlargement, geographic tongue, general skin rash, peritongue fungal infection

**All conditions include: bleeding on brushing, abnormal findings of salivary gland swelling

Table 2: Association among characteristics of Kenyan children and oral findings. A multivariate logistic regression analysis indicated a 289% increased odds for abnormal findings in the HIV group compared to the HEU and HUU groups. There was a 103% increased odds for caries detected amongst the cohorts living in the peri-urban setting. There was a 70% and 60% decreased odds for abnormal findings and all conditions for children living in peri-urban location, respectively.

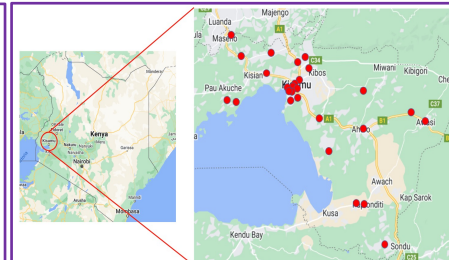


Figure 3: Locations of 27 clinics that were included in this study, all residing in Kisumu County, Kenya

Conclusions

1. Abnormal oral findings are significantly more prevalent in the pediatric HIV population, the most common being submandibular lymphadenopathy
2. Peri-urban location was a protective factor against prevalence of abnormal oral findings
3. Although there was no significant difference in prevalence of dental caries among the cohorts, the HIV+ was the highest – this highlights the complex relationship between dental caries and HIV status
4. This study displayed that in a medically well-controlled cohort of HIV children, as we followed, young children infected with HIV remain at higher risk for oral diseases when compared to their non-infected peers.

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Scan for References

