

The Prevalence of
HIV & TB co-infection
in children attending
AMGH Lae, Morobe
Province



Introduction

- ▶ HIV is the top and TB is the second leading cause of death from infectious disease world wide.
- ▶ WHO - HIV prevalence among children with tuberculosis, in countries with moderate to high prevalence ranges from 10-60% ,
(Venturini et.al 2014)
- ▶ The challenge is in preventing TB in those diagnosed with HIV and the effective management of the co-infection in children. (WHO 2004)
- ▶ HIV- key factor behind the resurgence in TB incidence world wide
(Venturini et.al 2014)



- ▶ In PNG - 8,000 newly diagnosed cases of TB per year 1/3rd of whom are children. (Paediatric Doctors in PNG)
- ▶ Paediatric TB in HIV have overlapping clinical manifestations - missed or late diagnosis.
- ▶ Diagnosing a child with smear positive TB is difficult & most children are registered as having “smear negative PTB” even though the smear has not been done, which is the commonest type. (WHO TB/HIV manual guide 2nd edition 2006)
- ▶ Data on HIV/TB co-infection are still lacking. (Venturini et.al 2014)
- ▶ **Hence the aim of this study was proposed to find the prevalence of HIV/TB co-infection in Lae Morobe Province and find the commonest form of TB in those with HIV infection**



METHODS

- ▶ Prospective study
- ▶ Questionnaire form included Socio-demographic and Anthropometrical Data.
- ▶ Qualitative questions- included to assess knowledge of TB & HIV in parents. This was separated into no knowledge, some knowledge and good knowledge.
- ▶ July to December 2014, 6 month period.
- ▶ All Children aged from 6wks to 15yrs of age who were already diagnosed with TB, from COPD, Consultation Clinic, Health Centres or in the wards.
- ▶ 150 patients
- ▶ All were on Intensive Phase of TB Treatment



Methods – HIV testing

- ▶ All Patients diagnosed with TB had PICT for him/her and the parents in a private and secure room, maintaining confidentiality.
- ▶ Consent was signed before testing took place
- ▶ For those children less than 18 months
 - ▶ Mothers PICT- HIV anti-body test, Rapid Test.
 - ▶ If Rapid Test was reactive , confirmatory test was then done
 - ▶ A DBS (Virological testing)
- ▶ For those older than 18 months
- ▶ Rapid Test was done then a confirmatory test to confirm the positive or negative result
- ▶ Post Test Counselling & follow up for further appropriate management.



ANALYSIS

- ▶ Data was entered and analysed using the SPSS (10th version) Programme.
- ▶ Descriptive statistics were used to describe data
- ▶ BMI Calculator in Children was used for BMI and growth percentiles according to age and gender.



Results

▶ Socio-demographics

- ▶ Out of the 150 children there were 52.7% (79) M and 47.3% (71) F
- ▶ Age from 6wks to 15yrs old, range
- ▶ Median age 22months IQR 11.75 and 72 months
- ▶ The origin of these patients, were from Momase (87) 57% and Highlands (54) 36%
- ▶ The place of residence of these children were, in the City (38) 25.3%, Blocks/Settlements (87) 58%
- ▶ Water supply 42% streams, rivers. Tap treated water 28% , rest others
- ▶ Latrines Pit toilet 65.3%, Septic 20.7%



- ▶ 17.3 % of the Fathers had no Formal Education as opposed to 30% of Mothers
- ▶ Formal Education was 68% for mothers and fathers
- ▶ The employment Status, 47.9% of the Fathers were employed as opposed to 93.6% of the Mothers being unemployed. Fathers 83.2% earned less than K500 a fortnight.
- ▶ Immunisation status
- ▶ Completed Vaccination (32) 21.3%, Up to date for age (5) 3.3%. Out of these children (110) 73.3% had been vaccinated with BCG vaccine
- ▶ Parents knowledge of TB, majority had some knowledge 66.7% for TB and Some knowledge of HIV 80.7%.



Anthropometric measurements

Weight for height in Z score in those 5yrs & less

BOYS	FREQUENCY	PERCENT	GIRLS	FREQUENC Y	PERCENT %
More than 3 SD	3	5.2	More than 3 SD	2	3.9
2 to 3 SD	1	1.7	2 to 3 SD	0	0
-2 to 2SD	17	29.3	-2 to 2SD	22	43.1
-2SD to -3SD	13	22.4	-2sd to -3SD	10	19.6
Below -3SD	24	41.4	Below -3SD	17	33.3



Weight for Height - BMI for Age, Percentiles in Boys & Girls more than 5yrs old

BOYS Percentile range	Frequency	Percent	GIRLS Percentile range	Frequency	Percent
Less than 5%	8	38.1	Less than 5%	9	45.0
5% to 85%	12	57.1	5% to 85%	9	45.0
85% to 95%	1	4.8	85% to 95%	2	10.0
total	21	100.0	total	20	100.0



- ▶ MUAC less than 12.5 cm 77/137 (56%) malnutrition , 60/137 good nutrition

TB status and outcome

- ▶ New Cases 135/150, Relapse 8, Defaulter 7
- ▶ PTB 87 , ExTB 63
- ▶ ExTB, CNS TB 39/ 63 61.9%, TBLN 17.5%, Disseminated TB 7.9%
- ▶ Death outcome 9.3 % (14/1114) inpatient,
- ▶ Lost to follow up in OPD & inpatients 48.7%



HIV INFECTED/TB co-infection

- ▶ 7/150 diagnosed with HIV, 4.6 %
- ▶ 6 males , 1 female
- ▶ median age 10 months
- ▶ 2 confirmed Rapid test and Stat pack
- ▶ 4 DBS confirmed
- ▶ 1 Rapid Test twice positive , DBS no result
- ▶ MUAC 5 less than 12.5cm, and had moderate or severe malnutrition



HIV INFECTED/TB co-infection

- ▶ PTB 6/7, one CNS TB
- ▶ Outcome 3d/c and lost to follow up, 1 death 14%, 2 were fine after follow up
- ▶ 1 lost to follow up as an out patient
- ▶ HIV Clinical stage 3 in 6/7 in all patients
- ▶ HIV Clinical stage 4 in 1/7 CNS TB
- ▶ Associated symptoms
 - Oral thrush (4)
 - Hepatosplenomegally (3)
 - Rashes/pustules (2)
 - Alopecia (2)
 - PCP (1)
 - Chronic ear discharge (3)



Parents of HIV/TB co-infected children

- ▶ 3 children came from a polygamous family
- ▶ All mothers were HIV positive , 2 deceased, 1 defaulter, 4 newly diagnosed
- ▶ Only 2 mothers on ART during pregnancy
- ▶ Fathers 4 unknown HIV status , 1 confirmed but deceased, was on ART and 2 Negative,



DISCUSSIONS

- ▶ Prevalence of TB & HIV co-infection was 4.6%
- ▶ Prior to the study only 3 of 7 HIV-positive patients had been tested
- ▶ Overlapping of clinical symptoms in HIV negative and HIV positive patients with Tuberculosis.
- ▶ **Benefits of HIV testing in TB patients: Early diagnosis and initiation of ART**
- ▶ **This study showed that Malnutrition is a major problem** 38.1% in girls 45% in boys more than 5yrs old.
- ▶ Less than 5yrs old 63.8 % in boys and 52.9% in girls malnutrition below -2sd Z score.
- ▶ Malnutrition in co-infected patients with HIV as well 6/7.
- ▶ To reduce TB incidence, malnutrition has to be addressed.



- ▶ **Low socioeconomic status** - 93% of mothers were unemployed , just less than 50% of fathers were employed earning less than K500.
 - ▶ Children came from the blocks and settlements , poor sanitation, poor water supply
 - ▶ Poverty
 - ▶ TB epidemic can be controlled by socio-economic improvements.
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- ▶ In the 150 TB patients ExPTB, CNS TB was the leading cause of TB. [TB 58%, EXTB 42%.
 - ▶ In the limited paediatric literature, studies have reported no significant differences in the frequency of EPTB between HIV positive and negative children



LIMITATIONS

- ▶ Number of patients
- ▶ Different clinicians with varying skills diagnosing patients with TB
- ▶ Difficulty in diagnosing TB – modalities (x-ray machine out of order during that period at AMGH), inconsistency



RECOMMENDATIONS

- ▶ Early Diagnosis of HIV and ART for Patients – strengthening this and also PPTCT for Pregnant Mothers.
- ▶ Continue to address the issues of Malnutrition in TB and HIV positive patients more so in those with co-infection.
- ▶ Aggressive in management of these patients
- ▶ Socioeconomic problems – leaders in places of power should alleviate these issues to lift the burden of TB



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- ▶ 6. Supervisor in PMGH – Prof . Vince
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