IS THE RATE OF PREECLAMPSIA AFFECTED BY HIV/AIDS?: A RETROSPECTIVE CASE-CONTROL STUDY.

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Background

- The etiology of pre-eclampsia remains unclear and is most likely multi-factorial.
- Immune mal-adaptation has been postulated as a possible cause
- ? Association between HIV and PET

Rationale

Understanding the etiology of preeclampsia will guide research on prediction, prevention and management of pre-eclampsia.

HIV and PET: previous studies

- Wimalasundera et al (2002):
  - Cohort study, n=214
  - PET rate:
    - HAART naïve: 0%
    - On HAART: 11% P=0.0087
- Frank KA, Buchman EJ, & Schackis RC, (2004):
  - Retrospective
  - N=2600
  - PET rate:
    - HIV neg: 5.2%
    - HIV pos: 5.7% P=0.61

HIV and PET: previous studies

- Mattar et al (2004):
  - N=123
  - PET rate:
    - HIV pos: 0.8%
    - HIV neg: 10.6% P=0.0017
- Suy et al (2006):
  - PET rate
    - 258 ARV naïve and 74 on Monotherapy: 0%
    - 140 on HAART: 6.4%
- The AmRo study:
  - No difference

HIV and PET: previous studies

- Previous studies have compared the rate of pre-eclampsia between HIV positive and HIV negative groups.

- This study is probably the first to report the rate of HIV/AIDS in women with preeclampsia in comparison to a control group without pre-eclampsia.

AIM

- To evaluate the association between HIV infection and preeclampsia:
  - Mainly, to test the hypothesis that pre-eclamptic women are less likely to be affected by HIV/AIDS.
  - Also, to compare clinical and bio-chemical profile of pre-eclampsia in HIV positive and HIV negative women.

METHODS

- Design:
  - Retrospective case-control study
- Setting:
  - Grey's and Edendale Hospitals, Pietermaritzburg Complex, KZN, South Africa
- Population:
  - women who delivered in the two hospitals from 1st Jan 2008 to Jun 2010.

METHOD (contd.)

- Inclusion and exclusion criteria
- Data collection
- Sample size & Study power

For a reduction in sero-prevalence from 40% (controls) to 25% (cases), 890 women were required to achieve statistical significance ($P<0.05$) with a study power of 80%.

METHOD: inclusion criteria

Cases:

Women with diagnosis of preeclampsia and:

- Known HIV status
- Documented proteinuria
- No underlying chronic medical condition

Controls:

Women without hypertension during index pregnancy and:

- Known HIV status
- No underlying chronic medical condition.

METHODS (contd.)

- Statistical method
  - SPSS version 18
  - P<0.05 considered as statistically significant.
- Ethical approval
  - BREC-UKZN
  - Respective Hospital managers

RESULTS

	HIV positive	HIV negative	Total
Controls	183 (36.6%)	317 (63.4%)	500 (100%)
Preeclamptics (cases)	130 (26.4%)	362 (73.6%)	492 (100%)
Total	313 (31.6%)	679 (68.4%)	992 (100%)

RESULTS

- The prevalence of HIV infection in women with preeclampsia was 26.4%. In the control group, the HIV prevalence was 36.6%.
  - **p= 0.001, OR= 0.62 95% CI 0.47-0.82**

- After adjustment for the difference in age
  - **p=0.005 ,OR= 0.658**

RESULTS: CD4 count

	N	Median	Minimum	Maximum
Controls	75	208.00	56	725
Cases (PET)	66	304.00	10	906
Total	141	246.00	10	906

p = 0.008

RESULTS: proteinuria

- The proportion of women with protein^{3+} or more (on urine dipstix) was higher in the HIV negative group (39.2%) than in the HIV positive group (27.7%). **p=0.022**

- The mean serum protein and albumin were lower in HIV negative than in HIV positive women. Respective **p<0.0001** and **p=0.013**

RESULTS: cases

- No difference:
  - in the rate of complications such as eclampsia/IE, abruptio, HELLP
  - in the use of rapid acting agent, MgSO4 and number of anti-HPT agents
  - in the mean highest systolic and diastolic blood pressure

DISCUSSION

- First study of its type
- HIV rate significantly lower in women with PET as compared to control. **p=0.005, OR=0.658**

DISCUSSION

- Findings:

  - highlight the immune basis for PET and suggest that immuno-suppression (like in HIV/AIDS) could be protective against pre-eclampsia.

  - differ from a South African study by Frank et al (2004) and the AmRo study by Boer et al (2007).

  - in keeping with results from study by Wimalasundera et al (2002), Mattar et al (2004) , and Suy et al (2006)

Limitations

- Retrospective study
- CD4 count:
  - available only in 66 cases and 75 controls
- Other risk factors: like BMI
- 24hours urine proteins
  - results were available in only 29 cases.

Conclusion

- HIV pos women are less likely to develop preeclampsia.
- This is probably due to immuno-suppression.

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