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

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- Background
- Literature review
- Aim and objectives
- Methods
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- Discussion
- Conclusion
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

  - 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

<table>
<thead>
<tr>
<th></th>
<th>HIV positive</th>
<th>HIV negative</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td><strong>Controls</strong></td>
<td>183 (36.6%)</td>
<td>317 (63.4%)</td>
<td>500 (100%)</td>
</tr>
<tr>
<td><strong>Preeclamptics (cases)</strong></td>
<td>130 (26.4%)</td>
<td>362 (73.6%)</td>
<td>492 (100%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>313 (31.6%)</td>
<td>679 (68.4%)</td>
<td>992 (100%)</td>
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</table>
RESULTS

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

- After adjustment for the difference in age
  - $p=0.005$ , $\text{OR} = 0.658$
RESULTS: CD4 count

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
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<tbody>
<tr>
<td>Controls</td>
<td>75</td>
<td>208.00</td>
<td>56</td>
<td>725</td>
</tr>
<tr>
<td>Cases (PET)</td>
<td>66</td>
<td>304.00</td>
<td>10</td>
<td>906</td>
</tr>
<tr>
<td>Total</td>
<td>141</td>
<td>246.00</td>
<td>10</td>
<td>906</td>
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\[ p = 0.008 \]
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. \( p=0.005, \quad \text{OR}=0.658 \)
DISCUSSION

• Findings:

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


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.
THANKS to

- Dr TD NAIDOO
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