Management of Pleural Effusions in HIV/TB co-infected patients in BBH

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Objective

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Adjunctive role of Steroids in managing Pleural effusions in HIV/TB co infection

- A very high growth in number of cases now exist with this synergistic relationship between tuberculosis and HIV infection and its complications.
- In developing countries, tuberculosis accounts for a significant rise of mortality among patients of AIDS.
- Clinically active tuberculosis develops in the intermediate stage where the Cell Mediated immunity (CMI) has just started to deteriorate i.e. CD4 lymphocyte count is between 500 to 200/dl and pleural effusion is one of the likely presentations in this relationship.

Methods (1)

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- *Design* : Prospective, Observational
- Blind & Hospital based.
- During a 1-year period from October 2005 to September 2006, 52 patients were enrolled into the study. Criteria for inclusion were:
- 1) HIV seropositive (either to HIV 1 or both 1 & 2)
- 2) AFB sputum or Lymph node smear positive
- 3) Bilateral or Unilateral pleural effusion (small to massive)
- 4) Age group: 15-50 years
- 5) Sex: both
- 6) ± symptoms and signs

- Amongst the 52, 20 were females and 32 males, the following tests were performed HIV screening, ZN stain for AFB, Mantoux, chest X-ray, chest ultrasound, pleural fluid analyses (biochemical and cytology), CD4 count (all had CD4 ≤ 250cells/mm^3)and liver function tests.

Methods (2)

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- Therapeutic thoracocentesis was performed most often not more that once and under ultrasound guidance and in some cases tube thoracostomy was done.
- They were immediately started on anti TB short-course therapy with an initial intensive phase of 4 drugs (2 months of INH, RIF, PZA and EMB) followed by a 4-month continuation phase of INH and RIF and 2 weeks of DOT in the TB ward was strongly enforced.
- Antiretroviral therapy was deferred for some until TB treatment was completed, while HAART was initiated in others. Some were already on HAART 2nd line (efavirenz + 2 NRTIs) while others were on first line containing nevirapine. ARVT for this last group was changed to 2nd line because of the interactions between rifampicin & PIs and NNRTIs which could consequently bring about a significant reduction of the serous levels of both rifampicin & anti-retrovirals resulting in increased risk of developing resistance.

- Co-trimoxazole prophylaxis (960mg/d) was initiated in most patients.
- 20 patients out of 35 with massive effusion were administered prednisolone tabs (0.5-1.0mg/kg/d) for 2 weeks then later taper gradually for another 2-4wks and stopped.
- Nutritional support was strongly advised for all patients, and usually placed on Soya beans pap.

Results (1)

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- Most of the patients (>80%) who had adjunct prednisolone had their pleural effusion resolved completely after the 1st aspiration, some had recurrence and needed a 2nd tap compared with those who did not.
- It was also found that good nutrition was associated with faster patients' recovery.

Results (2)

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- Pleural effusion resolved faster in patients who had adjunct prednisolone therapy; and these patients were up and doing in less than 1 week of hospitalization before being discharged after 2 weeks of DOT, than those who had their treatment without prednisolone, though this was not significant.

Discussion & Conclusions

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- Pleural effusion is a frequent medical problem in HIV /TB coinfected patients and its management in most critical especially when massive. Massive pleural effusion management in most HIV/TB coinfected patients will require adjunctive steroid alongside combination therapy involving HAART, Anti-TB with good nutritional support.

- Though steroids are immunosuppressants, there are likely benefits of adjunct prednisolone therapy in pleural effusion in HIV/ TB coinfected patients because, its use has been associated with a more rapid resolution of pleural effusion, associated increased level of CD4 cells, rapid clearance of *Mycobacterium tuberculosis* from the sputum amongst others, thereby reducing mortality.

Future perspectives

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- Molecular characterisation and Drug resistance patterns of TB strains in HIV-TB patients has to be looked into.

- Gene therapy, though may not offer a cure for AIDS in the sense that it may not effectively eradicate HIV infection (and TB). However, there could be some propositions involving the insertion of novel genes into human beings to create an environment that won't be favourable for viral replication.