[Indian J Chest Dis Allied Sci 2012;54:285-287]

Abstracts' Service

Antiretroviral Treatment of Adult HIV Infection: 2012 Recommendations of the International Antiviral Society—USA Panel

Melanie A. Thompson, Judith A. Aberg, Jennifer F. Hoy, Amalio Telenti, Constance Benson, Pedro Cahn, Joseph J. Eron Jr, Huldrych F. Günthard, Scott M. Hammer, Peter Reiss, Douglas D. Richman, Giuliano Rizzardini, David L. Thomas, Donna M. Jacobsen and Paul A. Volberding

JAMA 2012;308:387-402

Context. New trial data and drug regimens that have become available in the last 2 years warrant an update to guidelines for antiretroviral therapy (ART) in human immunodeficiency virus (HIV)–infected adults in resource-rich settings.

Objective. To provide current recommendations for the treatment of adult HIV infection with ART and use of laboratory-monitoring tools. Guidelines include when to start therapy and with what drugs, monitoring for response and toxic effects, special considerations in therapy, and managing antiretroviral failure.

Data Sources, Study Selection, and Data Extraction. Data that had been published or presented in abstract form at scientific conferences in the past 2 years were systematically searched and reviewed by an International Antiviral Society–USA panel. The panel reviewed available evidence and formed recommendations by full panel consensus.

Data Synthesis. Treatment is recommended for all adults with HIV infection; the strength of the recommendation and the quality of the evidence increase with decreasing CD4 cell count and the presence of certain concurrent conditions. Recommended initial regimens include 2 nucleoside reverse transcriptase inhibitors (tenofovir/emtricitabine or abacavir/lamivudine) plus a nonnucleoside reverse transcriptase inhibitor (efavirenz), a ritonavir-boosted protease inhibitor (atazanavir or darunavir), or an integrase strand transfer inhibitor (raltegravir). Alternatives in each class are recommended for patients with or at risk of certain concurrent conditions. CD4 cell count and HIV-1 RNA level should be monitored, as should engagement in care, ART adherence, HIV drug resistance, and quality-of-care indicators. Reasons for regimen switching include virologic, immunologic, or clinical failure and drug toxicity or intolerance. Confirmed treatment failure should be addressed promptly and multiple factors considered.

Conclusion. New recommendations for HIV patient care include offering ART to all patients regardless of CD4 cell count, changes in therapeutic options, and modifications in the timing and choice of ART in the setting of opportunistic illnesses such as cryptococcal disease and tuberculosis.

Why India Should Become a Global Leader in High-quality, Affordable TB Diagnostics

Peter Small

Indian Journal of Medical Research 2012;135:685-9

The scale up of DOTS in India is one of the greatest public health accomplishments, and yet undiagnosed and poorly managed TB continues to fuel the epidemic such that India continues to have the highest number of TB cases in the world. Recognizing these challenges, the Government of India has set an ambitious goal of providing universal access to quality diagnosis and treatment for all TB patients in the country. Innovative tools and delivery systems in both the public and private sectors are essential for reaching this goal. Fortunately, India has the potential to solve its TB problem with "home-grown" solutions. Just as Indian pharmaceutical companies revolutionized access to high-quality, affordable AIDS drugs through generic production, Indian diagnostic companies could also become the world's hub for high-quality generic diagnostics. In the long term, India has the potential to lead the world in developing innovative TB diagnostics. For this to happen, Indian industry must move from the import and imitation approach to genuine innovation in both product development as well as delivery. This must be supported by permissive policies and enhanced funding by the Indian government and the private sector. Strict regulation of diagnostics, increased attention to quality assurance in laboratories, and greater engagement of the private health care providers are also needed to effectively deliver innovative products and approaches.

Serological Tests for the Diagnosis of Active Tuberculosis: Relevance for India

Karen R. Steingart, Andrew Ramsay, David W. Dowdy and Madhukar Pai

Indian Journal of Medical Research 2012;135:695-702

Diagnostic tests for active tuberculosis (TB) based on the detection of antibodies (serological tests) have been commercially available for decades, although no international guidelines have recommended their use. An estimated 1.5 million serological TB tests, mainly enzyme-linked immunosorbent assays, are performed in India alone every year, mostly in the private sector. The cost of serological tests in India is conservatively estimated at US $15 million (₹825 million) per year. Findings from systematic reviews on the diagnostic accuracy of serological tests for both pulmonary and extra-pulmonary TB suggest that these tests are inaccurate and imprecise. A cost-effectiveness modelling study suggests that, if used as a replacement test for sputum microscopy, serology would increase costs to the Indian TB control sector approximately 4-fold and result in fewer disability-adjusted life years averted and more false-positive diagnoses. After considering all available evidence, the World Health Organization issued a strong recommendation against the use of currently available commercial serological tests for the diagnosis of TB disease. The expanding evidence base continues to demonstrate that the harms/risks of serological tests far outweigh the benefits. Greater engagement of the private sector is needed to discontinue the use of serological tests and to replace these tests with WHO-endorsed new diagnostics in India. The recent ban on import or sale of TB serological tests by the Indian health ministry is a welcome step in the right direction.

Association Between Domestic Mould and Mould Components, and Asthma and Allergy in Children: A Systematic Review

C. Tischer, C.M. Chen and J. Heinrich

European Respiratory Journal 2011;38:812-824

Critical reviews over the past 10 years have found increased respiratory and allergic health outcomes for children living in damp and mouldy environments. However, recent studies have suggested that early childhood exposure to specific mould components may actually protect children from developing allergy.

We conducted a systematic review of observational studies published in English from January 1980 to July 2010. This review was conducted according to systematic guidelines for Meta-analyses of Observational Studies in Epidemiology (MOOSE). The literature was searched using a computerised bibliographic database, PubMed. In order to increase the quality of the reviewed studies, meta-analyses of the effects of visible mould exposure on allergic health outcomes were performed and we evaluated the findings according to the Bradford Hill criteria for evidence of causation.

The literature search identified 1,398 peer-reviewed scientific publications, and 61 studies that fulfilled the inclusion criteria were included in this review. We observed increased risks of allergic respiratory health outcomes in children exposed to visible mould and mould spores. These findings were confirmed by the results of the meta-analysis and in line with the evaluation criteria according to Bradford Hill. Visible mould was positively associated with asthma (OR 1.49 (95%CI 1.28-1.72)), wheeze (OR 1.68 (95%CI 1.48-1.90)) and allergic rhinitis (OR 1.39 (95% CI 1.28-1.51)). However, there was a tendency of lower risk for allergic health outcomes in children exposed to mould-derived components such as (1,3)-β-D-glucan and extracellular polysaccharides.

These findings suggest that home environments with visible mould and mould spore exposure increase the risk of allergic respiratory health outcomes in children. However, further investigations are needed to examine the effects of exposure to mould-derived components as the current literature is inconclusive. In order to disentangle the different effects of overall microbial exposure on children's health, research should focus on specific microbial markers in the home, in combination with new assessment techniques including molecular methods.

Effects of Bacterial Infection on Airway Antimicrobial Peptides and Proteins in COPD

Ganapathi Iyer Parameswaran, Sanjay Sethi, and Timothy F. Murphy

Chest 2011; 140(3):611-617

Background. Pathogenic bacteria colonize the airways of 30% to 40% of patients with COPD and cause approximately 50% of exacerbations. New strains of nontypeable *Haemophilus influenzae* (NTHI) and *Moraxella catarrhalis* are associated with exacerbations. Antimicrobial protein/peptides (AMPs) play important roles in innate lung defense against pathogens. To our knowledge, the changes in AMP baseline levels in respiratory secretions during bacterial colonization and exacerbation have not been described. The objective of this study was to elucidate the effects of the acquisition of a new strain of pathogenic bacteria on the airway levels of AMPs in patients with COPD.

Methods. One hundred fifty-three samples from 11 patients were selected from COPD sputum samples collected prospectively over 6 years. Samples were grouped as culture-negative (no pathogenic bacteria), colonization, and exacerbation due to new strains of NTHI and *M. catarrhalis.* Levels of lysozyme, lactoferrin, LL-37, and secretory leukocyte protease inhibitor (SLPI) were measured by enzyme-linked immunosorbent assay and compared among groups by paired analysis.

Results. Compared with baseline, sputum lysozyme levels were significantly lower during colonization and exacerbation by NTHI (P=.001 and P=.013, respectively) and *M. catarrhalis* (P=.007 and P=.018, respectively); SLPI levels were lower with exacerbation due to NTHI and *M. catarrhalis* (P=.002 and P=.004, respectively), and during colonization by *M. catarrhalis* (P=032). Lactoferrin levels did not change significantly; LL-37 levels were higher during exacerbation by, NTHI and *M. catarrhalis* (P=.001 and P=.018, respectively).

Conclusions. Acquisition of NTHI and *M. catarrhalis* is associated with significant changes in airway levels of AMPs, with larger changes in exacerbation. Airway AMP levels are likely to be important in pathogen clearance and clinical outcomes of infection in COPD.