Volume 3, Issue 3

CIDS Newsletter

March 2016

CLINICAL INFECTIOUS DISEASES SOCIETY

Editor:
Dr Ram Gopalakrishnan

Associate Editors:
Dr Neha Gupta, Dr Ashwini Tayade, Dr Surabhi Madan

Design & format:
Dr Laxman G. Jessani

Editor's note

Dear CIDS members

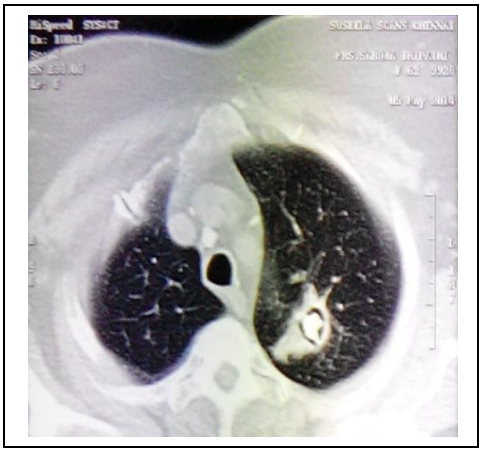
Request all members to send in interesting cases for the photo quiz section of the newsletter. Contributions to the other sections are also most welcome.

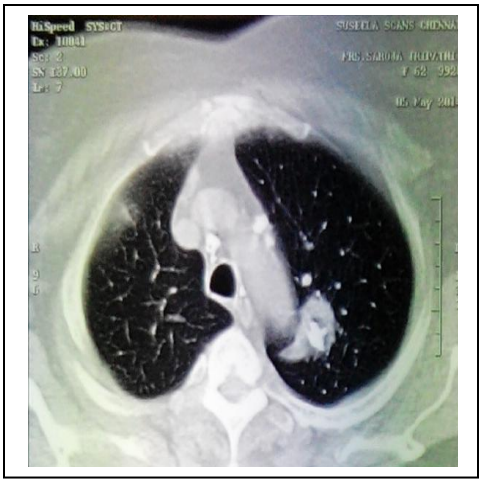
Sincerely

Ram Gopalakrishnan

Photo quiz

A 62/F presented with recurrent non massive streaky hemoptysis 5 years. She had a history of bronchial asthma for past 25 years. CT chest is shown. She underwent left upper lobectomy and tissue culture grew Pseudomonas aeruginosa.





What is your diagnosis?

News from the ID world

Government bans 350 irrational drug combinations

It is heartening to note that many antibiotic combinations are among the 350 drug combinations recently banned by the Govt of India. Hopefully this will contribute to more rational prescribing practices and less antimicrobial resistance.

Snippets from the literature

Urine LAM promising for diagnosis of disseminated TB in HIV

Lancet online first March 9, 2016

The authors assessed a urine-based, lateral flow, point-of-care, lipoarabinomannan assay (LAM) and the effect of a LAM-guided anti-tuberculosis treatment initiation strategy on mortality in a multicentre trial in ten hospitals in Africa. Eligible patients were HIV-positive adults aged at least 18 years with at least one of the following symptoms of tuberculosis (fever, cough, night sweats, or self-reported weight loss) and illness severity necessitating admission to hospital. Patients were randomly assigned patients (1:1) to either LAM plus routine diagnostic tests for tuberculosis (smear microscopy, Xpert-MTB/RIF, and culture; LAM group) or routine diagnostic tests alone (no LAM group). Overall all-cause 8-week mortality occurred in 578 (23%) patients, 261 (21%) in LAM and 317 (25%) in no LAM, an absolute reduction of 4% (95% CI 1–7).

The implementation of LAM testing is likely to offer the greatest benefit in hospitals where diagnostic resources are most scarce and where patients present with severe illness, advanced immunosuppression (especially with CD5<50), and an inability to self-expectorate sputum. The test is WHO recommended since 2015 and specificity is >99%.

How do private practitioners in Chennai diagnose and treat tuberculosis?

PLOS ONE | DOI:10.1371/journal.pone.0149862
February 22, 2016

This was a cross-sectional survey of 228 practitioners practicing in the private sector from January 2014 to February 2015 in Chennai city who saw at least one TB patient in the previous year. A median of 12 (IQR 4–28) patients with TB were seen per year. Of 10 ISTC standards evaluated, the median of standards adhered to was 4.0 (IQR 3.0–6.0). Chest physicians reported greater median ISTC adherence than other MD and MS practitioners (score 7.0 vs. 4.0, P<0.001). Only 52% of all practitioners sent >5% of patients with cough for TB testing, 83% used smear microscopy for diagnosis, 33% monitored treatment response, and 22% notified TB cases to authorities. Of 228 practitioners, 68 reported referring all patients with new pulmonary TB for treatment, while 160 listed 27 different regimens; 78% (125/160) prescribed a regimen classified as consistent with ISTC.

TB management practices in India's urban private sector are heterogeneous and often suboptimal. A 40% score is probably a fail for Chennai!

Four Artemisinin-Based Treatments in African Pregnant Women with Malaria and a meta-analysis of ACTs vs quinine

N Engl J Med 2016; 374:913-927
Open Forum Infect Dis (Winter 2016) 3 (1):doi: 10.1093/ofid/ofv170

The authors conducted a multicenter, randomized, open-label trial of treatments for malaria in pregnant women in four African countries. A total of 3428 pregnant women in the second or third trimester who had falciparum malaria (at any parasite density and regardless of symptoms) were treated with artemether–lumefantrine, amodiaquine–artesunate, mefloquine–artesunate, or dihydroartemisinin–piperaquine. The primary end points were the PCR adjusted cure rates (i.e., cure of the original infection; new infections during follow-up were not considered to be treatment failures) at day 63 and safety outcomes. PCR-adjusted cure rates in the intention-to-treat analysis were 94.2%, 96.9%, 98.0%, and 95.5%, respectively. Drug-related adverse events such as asthenia, poor appetite, dizziness, nausea, and vomiting occurred significantly more frequently in the mefloquine–artesunate group (50.6%) and the amodiaquine–artesunate group (48.5%) than in the dihydroartemisinin–piperaquine group (20.6%) and the artemether–lumefantrine group (11.5%) ($P<0.001$ for comparison among the four groups).

The meta-analysis compared efficacy, safety and tolerability of ACTs versus quinine and other non-ACT antimalarials. The median PCR-adjusted failure rate by days 28 to 63 in the non-ACT group was 6 (range 0–37) per 100 women, lower in the ACT group overall (pooled risk ratio [PRR] random effects, 0.41), and significantly lower compared with oral quinine (PRR, 0.20). There were no differences in fetal deaths and congenital abnormalities. Compared with quinine, artemisinin-based combinations therapies were associated with less tinnitus (PRR, 0.19), dizziness (PRR, 0.64), and vomiting (PRR, 0.333).

Artemesinin based treatments are now first line therapy for malaria in pregnancy and are superior to and less toxic than quinine. Artemether + lumefantrine was associated with the fewest adverse effects and with acceptable cure rates but provided the shortest post-treatment prophylaxis, whereas dihydroartemisinin–piperaquine had the best efficacy and an acceptable safety profile.

Sepsis definitions changing

JAMA. 2016;315(8):801-810

A multidisciplinary taskforce describes the result of a paradigm-shifting effort to redefine sepsis and septic shock. Sepsis is defined as "life-threatening organ dysfunction caused by a dysregulated host response to infection." Organ dysfunction is ascertained by a change in the Sequential Organ Failure Assessment (SOFA) by greater than or equal to two points, which reflects an approximate 10 percent risk of mortality. A new measure, qSOFA, requires two of the following three elements to be considered: respiratory rate greater than or equal to 22/min, altered mental status, and systolic blood pressure of less than or equal to 100 mm Hg.
Septic shock was more loosely defined than in the previous definitions: "a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality." Clinically, this was defined as persistent hypotension requiring vasopressors to maintain mean arterial pressure greater than or equal to 65 mm Hg and a serum lactate greater than 2 mmol/L despite volume resuscitation. In the derivation study, risk-adjusted mortality of greater than 40 percent was noted in patients who met both criteria, 30.1 percent in those who only required vasopressors, and 25.7 percent in those with hyperlactatemia alone.

Now we have to re-learn definitions of this concept which has been unchanged for a quarter century!

Pneumonia diagnosis revolutionized by quantitative molecular techniques

Clin Infect Dis. (2016) 62 (7):817-823.doi: 10.1093/cid/civ1214

Clinical and laboratory data were collected for 323

adults with radiologically-confirmed CAP admitted to 2 UK tertiary care hospitals. Sputum (96%) or endotracheal aspirate (4%) specimens were cultured as per routine practice and also tested with fast multiplex real-time PCR assays for 26 respiratory bacteria and viruses. Bacterial loads were also calculated for 8 bacterial pathogens. The investigators achieved pathogen detection in 87% of CAP patients compared with 39% with culture-based methods. *Haemophilus influenza* and *Streptococcus pneumoniae* were the main agents detected, along with a wide variety of typical and atypical pathogens. Viruses were present in 30% of cases; 82% of these were co-detections with bacteria. Most (85%) patients had received antimicrobials in the 72 hours before admission. Of these, 78% had a bacterial pathogen detected by PCR but only 32% were culture-positive ($P <$ .0001). Molecular testing had the potential to enable de-escalation in number and/or spectrum of antimicrobials in 77% of patients.

Current diagnostic methods may identify a pathogen in only 30%–40% of patients with CAP. We already have viral molecular diagnostics for respiratory infections: once extended to bacteria, this will greatly augment clinical care and antimicrobial ste-

-wardship, especially in patients who have already received antibiotics as is often the case in practice.

Antibody levels and protection after Hepatitis B vaccine: Results of a 30 year follow-up study and response to a booster dose (courtesy Dr Surabhi Madan)

J Infect Dis 2016 Jan

After completion of the hepatitis B vaccination series, levels of protective antibody decline over time. Protection against clinical disease is provided by memory cells, which elicit an anamnestic antibody response. However, the duration of protection is unknown. In a long-term follow-up study, 51 percent of 243 Alaska Native adults and children maintained protective antibody levels 30 years after completion of the hepatitis B vaccine series and 88 percent of those without protective levels mounted an anamnestic response.
These findings suggest that protection persists for up to 30 years and support the current hepatitis B immunization schedule, which does not include a booster dose for patients with normal immune status.

Upcoming ID conferences and CME programs

Chennai ART symposium (CART)

April 16-17, 2016, Chennai

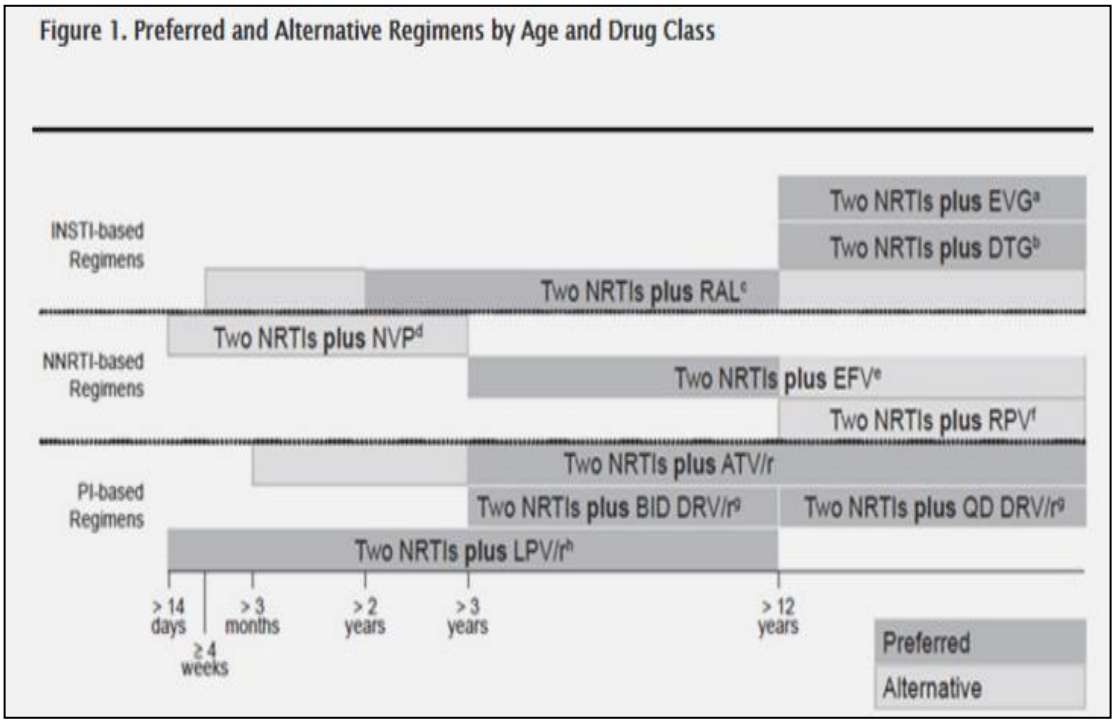
ttps://www.yrgcare.in/cart/cart_welcome.htm

Guideline watch

DHHS updates pediatric treatment guidelines
https://aidsinfo.nih.gov/guidelines/html/2/pediatric-arv-guidelines/0

Panel's Recommendations for Initiation of Therapy in Antiretroviral-Naive, HIV-Infected Infants and Children

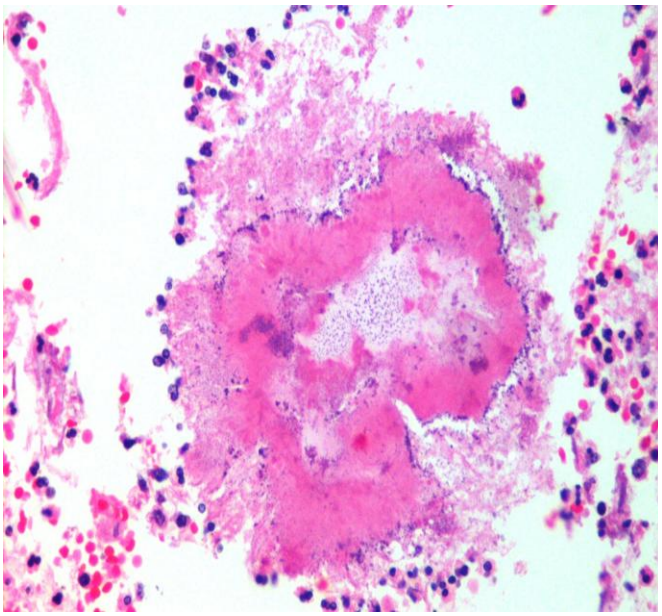
Panel's Recommendations		
Age	**Criteria**	**Recommendation**
<12 Months[a]	Regardless of clinical symptoms, immune status, or viral load	Urgent[b] treatment (**All except AI** for ≥6 weeks to <12 weeks of age)
1 to <6 Years	CDC Stage 3-defining opportunistic illnesses[c]	Urgent[b] treatment **(AI*)**
	CDC Stage 3 immunodeficiency:[d] CD4 <500 cells/mm^3	
	Moderate HIV-related symptoms[c]	Treat[a] **(All)**
	CD4 cell count[c] 500-999 cells/mm^3	
	Asymptomatic or mild symptoms[c] **and** CD4 cell count[c] ≥1000 cells/mm^3	Treat[a] **(BI*)**
≥6 Years	CDC Stage 3-defining opportunistic illnesses[c]	Urgent[a] treatment **(AI*)**
	CDC Stage 3 immunodeficiency:[d] CD4 <200 cells/mm^3	
	Moderate HIV-related symptoms[c]	Treat[b] **(All)**
	CD4 cell count[d] 200-499 cells/mm^3	
	Asymptomatic or mild symptoms[c] **and** CD4 cell count ≥500 cells/mm^3	Treat[a] **(BI*)**

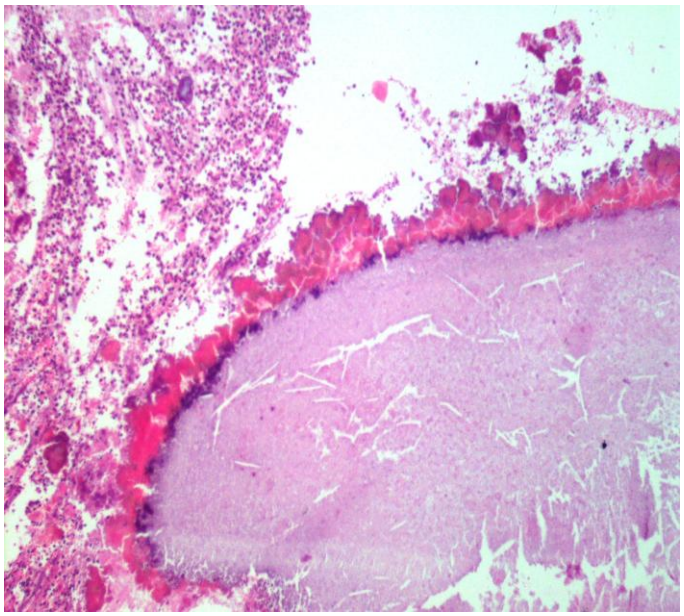


Answer to photo quiz

Histopathology showed lung parenchyma with cavity lined by necrotic material surrounded by neutrophils, lymphocytes, plasma cells and histiocytes. Cavity contained sulfur granules with Splendore-Hoeppli phenomenon and focal areas of hemorrhage were seen. Charcot- Leyden crystals were seen in abundance. Fungal and AFB stains were negative. This was consistent with botryomycosis.

Botryomycosis is a chronic, often suppurative, sometimes granulomatous bacterial infection of the skin, soft tissues, and viscera. Etiology is usually Staph aureus but many other etiologies have been reported.





Diagnosis: Pulmonary botryomycosis caused by Pseudomonas aeruginosa
(case provided by Dr Vinay Devraj).

CIDSCON - 2016

6th Annual Conference of Clinical Infectious Diseases Society, India

Venue : Banaras Hindu University, Varanasi, Uttar Pardesh

Block your Dates

26th, 27th, 28th, August 2016

Varanasi, India.

Organising Chairman :
Dr.Shyam Sundar

Organising Secretary :
Dr.Jaya Chakravarty

Scientific Committee Chairperson : Dr.Rajiv Soman

For more details Logon to : www.cidscon.in