

Editorial

Statistics related to tuberculosis (2004) are grim and disappointing. There were 1,824,395 estimated new cases of tuberculosis in our country. The estimated prevalence (incl. HIV-positive) was 312 per 100,000 population. The mortality due to the disease (incl. HIV-positive) was 30 per 100,000 population. 5.2% of adult (15-49) TB cases were HIV-positive (2004) and 2.4% of the new cases were multi-drug resistant. World tuberculosis day is a reminder to all of us to gear up to deal with tuberculosis on a war footing. High index of suspicion, early diagnosis, performing sputum for AFB in addition to X-rays, institution of appropriate AKT as per guidelines based on categorization, proper follow up and health education and motivation of the patient to take full treatment are areas which we need to focus upon religiously. Lets join hands and work hard towards a TB free society!

We commonly come across ECHO reports indicating 'diastolic dysfunction.' Presented in this issue is a discussion on the same s also some recent advances in the fields of ophthalmology and orthopaedics . Pleasant reading!

Dr. Ramesh Subramanian

TB ANYWHERE IS TB EVERYWHERE



March 24th 2007 is world TB day. The theme this year is "TB anywhere is TB everywhere."

The theme emphasizes that although TB is a preventable and curable disease, it remains a global emergency. The theme reflects the chronically inadequate investment in TB control, surveillance, research and development as well as TB's deadly synergy with HIV.

The theme addresses the challenges to endemic country TB programme performance that affect TB control progress on a global scale. Achieving the TB-focused targets of the United Nations' Millennium Development Goals depends on effectively raising and addressing country-level challenges through a unified global campaign.

In 2007, the World Health Organization will report on whether the 2005 global TB control targets of 70% case detection and 85% treatment success have been achieved.

Fifty countries reportedly have met the 70% detection target and approximately 25 countries have met both targets. This success represents a major landmark in TB control history and proves that TB control is effective, even in countries with limited resources. The predicted global average treatment success rate of 84% in 2005 is undeniably good, and the case detection rate is likely to be 60% in 2005. However, 2 million or so active TB cases that occur each year are being missed.

To help overcome the challenges that keep TB a global threat, there is an urgent need to push for full funding of the Global Plan to Stop TB (2006-2015) and work for implementation of the Stop TB Strategy. It is time for all governments and the donor community to meet their full responsibility to Stop TB, and for decision-makers to stand alongside people and communities affected by TB.

Through unified action on all levels, we can create a healthier globe, a better future, and work towards a world free of tuberculosis

http://www.stoptb.org/events/world_tb_day/2007/

CARDIOLOGY UPDATE

Acute coronary syndromes



- For evaluation of patients with ACS, prompt triage demands that a 12-lead ECG should be obtained without delay. This allows immediate identification of those who are undergoing an ST-segment elevation acute myocardial infarction (STEMI). If the ST-segment elevation and chest pain do not resolve immediately after the patient has chewed a 325-mg aspirin tablet and a sublingual nitroglycerin tablet has been administered, the patient should be promptly transported to the catheterization laboratory for angioplasty, provided an experienced interventionalist and team are readily available. While the patient is awaiting transport, a beta blocker should be administered intravenously and either enoxaparin or unfractionated heparin should be started.
- Because primary angioplasty results in a better short-term outlook than thrombolysis, it is the preferred approach. A recent meta-analysis of 23 trials comparing these two approaches showed a distinct survival benefit and reduction in adverse cardiac events with angioplasty. If no catheterization facility is available at the hospital and there are no plans to transfer the patient to a facility where percutaneous cardiac intervention (PCI) can be performed, or if access to an existing catheterization lab will be substantially delayed, thrombolytic therapy should be started immediately. The DANAMI-2 study in Denmark of 1,572 STEMI patients demonstrated that the combined endpoint of death, reinfarction, or stroke at 30 days was significantly less in patients promptly transported to a referral center (96% arrived within two hours) for primary angioplasty, compared to that observed in patients randomized initially to thrombolysis with an accelerated alteplase infusion (8.5% versus 14.2%, respectively).
- If a significant delay is anticipated, is to start thrombolytic therapy while arranging for transport to another facility where angioplasty can be carried out. The results from such an approach appear to be comparable to those with immediate primary angioplasty. The infusions of alteplase or streptokinase used in past years to accomplish thrombolysis have given way to third-generation thrombolytics that permit bolus injections. Generally, most patients receive either two boluses of reteplase 30 minutes apart or, more commonly today, a single weight-optimized bolus of tenecteplase. Based on the recent ASSENT III trial and similar results from the ENTIRE-TIMI 23 trial, my institution has adopted the strategy of combining full-dose tenecteplase with enoxaparin, which appears to offer better results compared to the combined use of tenecteplase and unfractionated heparin.
- If a patient fails to respond clinically, as evidenced by persistent, significant chest pain or failure of the ST segments to return promptly to baseline, he or she should be taken to the catheterization laboratory as soon as possible. Similarly, if either significant chest pain or ST-segment elevation recurs, immediate catheterization is generally indicated.
- Combination therapy using half-dose tenecteplase with abciximab in ASSENT III and half-dose reteplase with abciximab in GUSTO V produced comparable benefits to those just described. However, these therapies are associated with an increase in major bleeding complications and have not, therefore, been widely accepted. They are particularly likely to prove harmful in the very elderly patient.

Elliot Rapaport, Emerging Issues in Cardiology Emerg Med 36(6):16-26, 2004

Newer thrombolytics in AMI



- The field of thrombolytics has widened greatly from 1987 when the initial commercialisation for acute myocardial infarction was granted with the original choice of either streptokinase or t-PA.
- Trials of new plasminogen activators have gone forward using accelerated t-PA as the "gold" standard for comparison.
- The new plasminogen activators are bioengineered mutants of wild type t-PA. All have longer half lives and are administered as a single or double bolus.
- Three new agents, reteplase (r-PA), tenecteplase (TNK), and lanetoplas (n-PA) have each been studied in trials of 15 000 to 17 000 patients.
- None of these trials have shown superior mortality outcomes with the new plasminogen activators compared with t-PA. For TNK, "equivalence" was demonstrated with virtually the same mortality for TNK as with t-PA,² but for r-PA and n-PA there were very small gaps in mortality compared with t-PA (approximately 0.20 absolute per cent) that pre-empt an unequivocal declaration of "equivalency".
- r-PA is now registered for use in most countries throughout the world and the approval for TNK is imminent.

Eric J Topol , Acute myocardial infarction: thrombolysis Heart 2000;83:122)

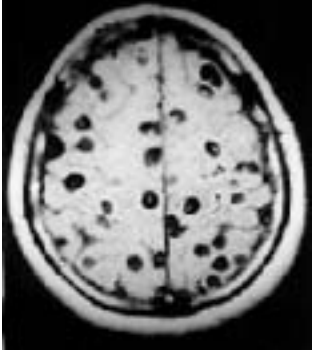
CARDIOLOGY FIRSTS!



- 1951- Charles Hufnagel, an American surgeon, develops a plastic valve to repair an aortic valve
- 1952- F. John Lewis, an American surgeon, performs first successful open heart surgery
- 1953- John H. Gibbon, an American surgeon, first uses a mechanical heart and blood purifier.
- 1961- J. R. Jude, an American cardiologist, leads a team performing the first external cardiac massage
- 1965- Michael DeBakey . Adrian Kantrowitz, American surgeons, implant mechanical devices in diseased heart
- 1967- Christiaan Barnard, a South African surgeon, performs the first whole heart transplant
- 1982- Willem DeVries, an American surgeon, implants a permanent artificial heart, designed by Robert Jarvik, an American physician, into a patient

QUIZ MANIA 63

**Patient presented with recurrent seizures of recent onset.
Diagnosis?**

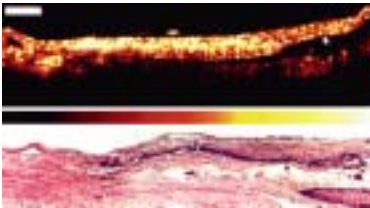


ANSWER TO QUIZ MANIA 62
Congestive cardiac failure

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RECENT ADVANCES

OPTICAL COHERENCE TOMOGRAPHY (OCT)



- Optical Coherence Tomography, or OCT, is a noncontact, noninvasive imaging technique used to obtain high resolution cross-sectional images of the retina.
- OCT works through the magic of low-coherence interferometry
- OCT is analogous to ultrasound B-scan imaging except that light rather than sound waves are used in order to obtain a much higher longitudinal resolution of approximately $10\mu\text{m}$ in the retina.
- OCT has been shown to be clinically useful for imaging selected macular diseases including
 - macular holes,
 - macular edema,
 - age-related macular degeneration,
 - central serous chorioretinopathy,
 - epiretinal membranes,
 - schisis cavities associated with optic disc pits, and
 - retinal inflammatory diseases.
- In addition, OCT has the capability of measuring the retinal nerve fiber layer thickness in glaucoma and other diseases of the optic nerve.

http://www.neec.com/pages/Glaucoma_OCT.html

PERCUTANEOUS VERTEBROPLASTY



- Percutaneous vertebroplasty is a newer technique in which acrylic cement is injected through a needle into a collapsed or weakened vertebra to stabilize the fracture.
- This procedure is effective for treating certain types of painful vertebral compression fractures and some painful or unstable benign and malignant vertebral lesions that fail to respond to the
- Vertebroplasty is most commonly performed in the angiography/interventional radiology suite. High-quality fluoroscopy is a prerequisite. Midazolam, fentanyl, or other medication may be administered to provide moderate sedation. Patients who are in severe pain may require general anesthesia to tolerate the prone positioning required for this procedure.
- Using sterile technique and fluoroscopic guidance, an 11-gauge needle is advanced into the vertebral body via a transpedicular or parapedicular approach.
- Under careful fluoroscopic visualization, PMMA cement and sterile barium or tungsten powder opacifier is slowly injected into the vertebral body, diffusing throughout the intertrabecular marrow space. The procedure is usually repeated through the contralateral pedicle unless there is adequate cross-filling of the vertebral body by the initial injection. The total volume of injected cement ranges from four to 12 cm. The cement sets in less than one hour and should stabilize the vertebra by forming a hard internal "cast." Most experts believe that pain relief is achieved through mechanical support and stability provided by the bone cement.
- Percutaneous vertebroplasty stabilizes and strengthens the vertebral body but does not restore the height or shape of a compressed or wedged vertebra. A modification of the vertebroplasty procedure, termed kyphoplasty, is being evaluated. Kyphoplasty involves the inflation of a high-pressure balloon that is introduced through an 11-gauge needle into the vertebral centrum to restore the height and shape of the vertebral body. The resultant cavity is then filled with cement

<http://www.aafp.org/afp/20020815/611.html>

SUSPENSION MICROLARYNGOSCOPY



Microlaryngoscopy is a procedure that means the vocal folds are looked at in great detail with magnification. The magnification may be with a microscope, endoscope or by video enlargement. It is often accompanied by some additional procedure such as removal of a mass, swelling or tumor. Long delicate instruments or a laser may be utilized.

In, a rigid videolaryngoscope is introduced into the pharynx and suspended. Surgery is performed using the the operating microscope which magnifies the image and delivers the laser beam. The video monitor t allows the surgeon and the anesthesiologist to visualize the larynx.

Suspension microlaryngoscopy is the gold standard treatment for a large number of lesions of the voice box. Polyps, cysts, scar tissue, and sometimes nodules can be resected under high power magnification. Specialized techniques of microflap excision minimize surrounding damage to the vocal cords and allow for excellent healing with return of the normal singing or speaking voice. There are minimal complications and little discomfort from the surgery. Voice rest is typically required for 1 week after surgery. Voice therapy with a specialized speech pathologist with a classical singing background is essential both before and after surgery for full recovery with an optimal performing voice.

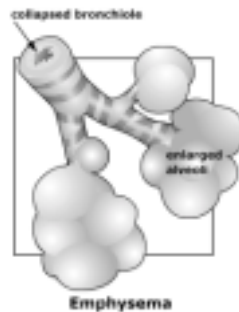
<http://www.ghorayeb.com/VocalCordPic.html>

<http://www.entfaculty.com/ent-voice.htm>

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Journal Scan

ANTICHOLINERGICS, BUT NOT BETA-AGONISTS, REDUCE SEVERE EXACERBATIONS AND RESPIRATORY MORTALITY IN COPD



Anticholinergics and β_2 -agonists have generally been considered equivalent choices for bronchodilation in chronic obstructive pulmonary disease (COPD).

To assess the safety and efficacy of anticholinergics and β_2 -agonists in COPD, electronic databases from 1966 to December 2005, clinical trial websites, and references from selected reviews were comprehensively searched. The relative risk (RR) of exacerbations requiring withdrawal from the trial, severe exacerbations requiring hospitalization, and deaths attributed to a lower respiratory event was evaluated.

Pooled results from 22 trials with 15,276 participants found that anticholinergic use significantly reduced severe exacerbations (RR 0.67, confidence interval [CI] 0.53 to 0.86) and respiratory deaths (RR 0.27, CI 0.09 to 0.81) compared with placebo. β_2 -Agonist use did not affect severe exacerbations (RR 1.08, CI 0.61 to 1.95) but resulted in a significantly increased rate of respiratory deaths (RR 2.47, CI 1.12 to 5.45) compared with placebo. There was a 2-fold increased risk for severe exacerbations associated with β_2 -agonists compared with anticholinergics (RR 1.95, CI 1.39 to 2.93). The addition of β_2 -agonist to anticholinergic use did not improve any clinical outcomes.

Conclusion: Inhaled anticholinergics significantly reduced severe exacerbations and respiratory deaths in patients with COPD, while β_2 -agonists were associated with an increased risk for respiratory deaths. This suggests that anticholinergics should be the bronchodilator of choice in patients with COPD, and β_2 -agonists may be associated with worsening of disease control.

Shelley R. Salpeter, Nicholas S. Buckley; Edwin E. Salpeter, J Gen Intern Med. 2006;21(10):1011-1019

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Medinews

TV VIEWING AND PHYSICAL ACTIVITY ARE INDEPENDENTLY ASSOCIATED WITH METABOLIC RISK IN CHILDREN: THE EUROPEAN YOUTH HEART STUDY



TV viewing and PA appear to be separate entities and are independently associated with metabolic risk. TV viewing was a positive predictor of adiposity and its association with metabolic risk disappeared after adjustment for adiposity. Surprisingly, PA was not associated with adiposity but was strongly negatively associated with metabolic risk independently of adiposity and other confounding factors. In common with numerous studies in adults, adiposity was positively associated with blood pressure, triglycerides, and insulin, and negatively associated with HDL cholesterol. Perhaps most surprising is the fact that these associations emerged so clearly in a relatively lean cohort of children aged only 9–15 years.

The following were the tentative pathways: (1) TV viewing predicts a poor metabolic risk profile, but this likely acts through TV-associated eating and snacking and resultant effects on adiposity; and (2) PA is not reciprocally associated with duration of TV viewing and has independent effects on metabolic risks.

The public health lessons are clear. Interventions will need to target excess TV viewing and physical inactivity separately, yet together, to yield maximal improvements. Each will require a distinct set of approaches underpinned by different strategies to achieve socio-behavioural change. Reducing TV viewing requires a negative/restraining input with an inevitable element of denial, while enhancing physical activity requires positive/aspirational inputs.

Andrew Prentice; Susan Jebb PLoS Med. 2006;3(12)

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Know the drug

GABAPENTIN

The drug is structurally related to neuro transmitter GABA

Mechanism of action:

Exact mechanism is not known but it prevents or decreases pain related response after peripheral inflammation.

Pharmacokinetics:

Bioavailability is 60% after 900 mg. given orally in 3 divided doses and not dose proportional. Food has negligible effect on the rate and absorption of the drug.

Indications:

For neuropathic pain in adults.

Contraindications:

- Hypersensitivity to gabapentin or to any of its components.

Warning and precautions:

- Dose adjustment is required in elderly and in renal impairment.
- Caution should be exercised during driving and operating machinery.
- Discontinuation of therapy should be done gradually over a period of one week.
- Safety in pregnancy and during lactation is not established.
- Safety and effectiveness is not established in pediatric use.

Adverse Effects:

- Somnolence and dizziness
- Diarrhea and dry mouth
- Peripheral edema
- Weight gain
- Abnormal gait, ataxia and amnesia.

Dose:

- Start with 100 mg. Initially and increase to 300mg. Three times daily .Maximum dose should not cross 1800mg.

Ref. Product insert.

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