UPDATES IN GERIATRICS

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Objectives
Review recent publication(s) on topics of interest in geriatric medicine

Scope
• Heart Surgery: What’s time got to do with?
• Dementia treatment: Are we there yet?
• Hospitalized elders: What works for delirium?
• Choosing wisely: Do simple things work as well?
• Personalized care: Is there an app for it?

What’s “Time” got to do with it?

Daytime variation of perioperative myocardial injury in cardiac surgery and its prevention by Rev-Erbα antagonism: a single-centre propensity-matched cohort study and a randomised study

The Lancet

Authors: Prof David Montaigne, MD et al

Methods
• Studied the incidence of major adverse cardiac events in a prospective observational single-center cohort study
• Did a randomized study that evaluated perioperative myocardial injury and myocardial samples of patients randomly assigned (1:1) to undergo isolated aortic valve replacement surgery either in the morning or afternoon
• Evaluated human and rodent myocardium in ex-vivo hypoxia–reoxygenation models and did a transcriptomic analysis in myocardial samples from the randomized patients to identify the signaling pathway(s) involved
In the cohort study the incidence of major adverse cardiac events was lower in the afternoon surgery group than in the morning group.

In the randomized group perioperative cardiac troponin T release was significantly lower in the afternoon group than in the morning group.

Ex-vivo analysis of human myocardium revealed an intrinsic morning–afternoon variation in hypoxia–reoxygenation tolerance, concomitant with transcriptional alterations in circadian gene expression with the nuclear receptor Rev-Erbα being highest in the morning.

**Conclusion**

- The time of day appears to be a significant factor in the outcome from surgery, with better outcomes if your surgery is in the afternoon.
- The study also suggests that modifying the genes responsible for this phenomenon could lead to the development of new drugs to protect the heart from damage during open heart surgery.

“Our heart ‘expects’ to work harder during the day than at night, with the opposite being true in mice.”

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**Dementia treatment: Are we there yet?**

- AD is the most common cause of dementia
- 47.5 million people worldwide are affected
- 5 million people in the US
- Cost about $172 billion annually in the US
- Available drugs for the global Alzheimer disease (AD) epidemic only treat the symptoms without modifying disease progression
- Increased number of trials are on-going targeting the neuropathological findings of AD

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**Ongoing Phase III clinical trials**

- Passive immunotherapy against Aβ peptides (crenezumab, gantenerumab, and aducanumab) seem to be promising
- Using small molecules blocking 5-HT6 serotonin receptor (intepirdine), inhibiting BACE activity (E2609, AZD3293, and verubecestat)
- Reducing tau aggregation (TRx0237) are also currently in Phase III clinical trials
Dementia treatment: Are we there yet?

- Over two hundred compounds have reached Phase II clinical trials since 2003
- No new drugs have been approved for the treatment of AD since 2003
- Most Phase II clinical trials ending with a positive outcome do not succeed in Phase III, often due to serious adverse effects or lack of therapeutic efficacy

Hospitalized elders: What works for delirium?

125 Articles were included, 25 were clinical trial, 42 cohort studies, 5 systematic reviews and meta-analyses and 55 were other categories.

11616 patients were represented in treatment studies

Findings: Advances in diagnosis and monitoring

- Brief screening tools with high sensitivity and specificity
  3-Minute Diagnostic Assessment, 4 A’s Test, proxy-based measures such Family Confusion Assessment Methods

- CAM-Severity Score used to monitor response to treatment, risk stratification and prognostication

Hospitalized elders: What works for delirium?

Importance and Relevance
Delirium is common and causes increased morbidity and mortality

Diagnosis and Risk Stratification
Advances in diagnosis with available screening tools and thorough examination can improve recognition and risk stratification

Imaging and fluid biomarker are being studied to enhance clinical risk stratification and diagnosis along with thorough clinical examination and laboratory testing

Prevention and Treatment
Prevention and treatment using nonpharmacological approaches is documented to be effective

Pharmacologic prevention and treatment remains controversial

Recommendation is to reserve pharmacologic intervention for agitation with risk of safety

Do Simple Things Work?

Randomized, Placebo-Controlled Evaluation of Cerumenex and Murine Earwax Removal Products

Ark Otolaryng Head Neck Surg. 2004;130:1175-1177
For ear wax removal: Simple measures are as good

**Objective:** To evaluate the efficacy of 2 ceruminolytic products, Cerumenex Ear Drops (Purdue Frederick Company, Norwalk, Conn) and Murine Ear Drops (Abbott Laboratories, Abbott Park, Ill), in subjects with partial or complete occlusion of the ear canal due to cerumen.

**Design:** Randomized, subject- and observer-blind, placebo-controlled, clinical trial.

**Settings:** Corporate research clinic.

**Participants:** From among 230 volunteers screened, 74 subjects (age, 22–96 [mean, 43] years) were enrolled in the study. Participants had baseline occlusion levels of mild (n=10), moderate (n=26), or complete (n=38) impairment of tympanic membrane visualization.

**Results:** Neither Cerumenex nor Murine was superior to saline placebo. By the end of treatment, 29.2%, 13.4%, and 41.7% of subjects treated with Cerumenex, Murine, and placebo, respectively, experienced resolution of cerumen occlusion. These values were not statistically significantly different from one another.

**Conclusions:** The currently marketed ceruminolytic products, Cerumenex and Murine, are no more effective than a saline placebo in removing earwax.

My prognosis: Is there an “APP” for IT?

**Prognostic Indices for Older Adults**
**A Systematic Review**

Lindsey C. Younman, MD
Sui J. Lee, MD, MAS
Mara A. Schonberg, MD, MPH
Eric W. Widera, MD
Alexander K. Smith, MD, MS, MPH

JAMA, January 11, 2012—Vol 307, No. 2

- Reviewed 21,593 titles to identify 16 indices that predict risk of mortality from 6 months to 5 years in a variety of clinical setting
  - Community 6 indices
  - Nursing home 2 indices
  - Hospital 8 indices
- The above study laid the foundation for the e-prognosis tool/app
  - [http://eprognosis.ucsf.edu/](http://eprognosis.ucsf.edu/)