THINGS WE DO FOR NO REASON IN ADULT ACUTE CARE MEDICINE

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Objectives

- The learner will be able to engage in discussion surrounding high-value care in the hospitalized patient.
- The learner will be able to identify the value of the use of NPO after midnight orders in the hospitalized patient.
- The learner will be able to identify the value of the echocardiogram in the patient who presents with syncope.
- The learner will be able to identify the value of Docusate Sodium in the hospitalized patient.
- The learner will be able to identify the value of routine TSH testing in the hospitalized patient.

Why question our practices?

- High-value care:
  - "Improve health, avoid harms, and eliminate wasteful practices."
    - ACP Initiative
  - "The best care for the patient, with the optimal result for the circumstances, delivered at the right price."
    - Institute of Health
- Barriers:
  - Minimal to no cost transparency
  - Provider practice habits
  - Staffing shortages
  - Insurance regulations

Provocative Discussion

"Inspired by the ABIM Foundation's Choosing Wisely® campaign, the "Things We Do for No Reason™" (TWDFNR) series reviews practices that have become common parts of hospital care but may provide little value to our patients. Practices reviewed in the TWDFNR series do not represent clear-cut conclusions or clinical practice standards but are meant as a starting place for research and active discussions among hospitalists and patients. We invite you to be part of that discussion."

Journal of Hospital Medicine

Society of Hospital Medicine

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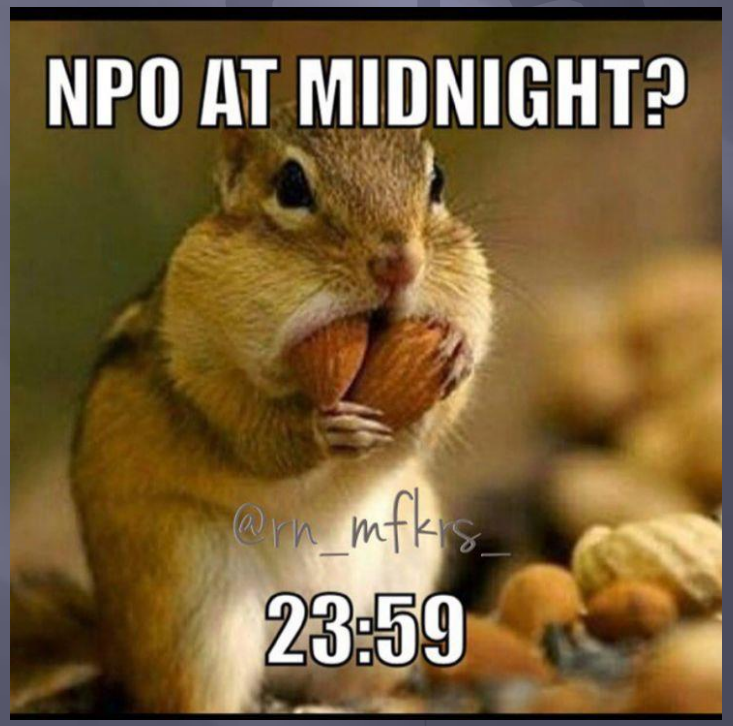
NPO after midnight



NPO after midnight

- Up to 50% of patients experience some time fasting while hospitalized
  - 14 hrs solids, 10 hrs liquids
- 1946 study by Mendelson that indicated 66 pregnant women who aspirated during delivery under general anesthesia
- Pressure of hospital efficiency and inpatient procedural timelines
- Consequences:
  - Patient dehydration/electrolyte disturbances
  - Patient dissatisfier

NPO after midnight

- Clear liquids
  - Transit of clear liquids out of the stomach complete on virtually all patients within 2 hrs
    - regardless of age or BMI
  - Morbidly obese patients do tend to have higher gastric volumes at 9 hrs of fasting but this is due to higher gastric volume overall
  - 1998 ASA guidelines recommend clear liquids up to 2 hrs prior to sedation or anesthesia in low-risk aspiration patients undergoing elective cases
  - Cochrane review of 9 studies – clear liquid beverage consumption reduced gastric volumes compared with fasting state

ASA Guidelines for Preop Fasting

Ingested material	Minimum fasting period
Clear liquids[a]	2 hours
Breast milk	4 hours
Infant formula	6 hours
Nonhuman milk	6 hours
Light meal (toast and clear liquids)	6 hours
Fatty meal	8 hours

Next Steps

- Estimated 10-20% NPO orders are avoidable
- Risk stratify patients to identify those at low aspiration risk
  - High risk includes pregnant patients, trauma, gastroparesis
  - No clear risk stratification tool
- For low risk, adhere to recommended times
- Focus on type of food and drink rather than amount
- Give home meds!!
- Time-based pre-procedural NPO status

Enhanced Recovery after Surgery Program

- Multiple studies indicate preop carb-rich drink 2 hrs before surgery can be associated with:
  - decreased insulin resistance in the perioperative period
  - decreased length of stay
  - improved perioperative metabolic, cardiac and psychosomatic status.
- Enhanced Recovery after Surgery program – recommend carb-rich drink 2-3 hrs before surgery

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Echocardiogram in all patients with syncope

Echocardiogram in all patients with Syncope

- Echo $1000-2200 per echo
- Estimated to be performed in 39-91% of syncope patients
- In patients with normal history, PE and ECG – the diagnostic yield of echo is extremely low
- In patients with positive cardiac history, abnormal PE or abnormal ECG – abnormal echo in up to 29% of cases
  - Not always the etiology however

American College of Cardiology Syncope Management Guidelines

- Abnormal History
- Abnormal Exam
- Abnormal ECG

What are we looking for with echo?

- Depressed EF → therefore risk for ventricular arrhythmias
- Structural causes of syncope
  - Aortic Stenosis
  - Pulmonary Hypertension
  - Hypertrophic cardiomyopathy

Literature Review

- Across studies, the percentage of patients with normal cardiac history, exam and ECG with new, significant abnormalities on echocardiogram was:
  - 0% in 3 studies (n=340)
  - 2% in 1 study (10/488 patients)
  - 2.1% in 1 study (1/47 patients)
  - 4.2% in 1 study (8/192 patients)
- Diagnostic yield of abnormal echo in patients with positive cardiac history or abnormal ECG:
  - 8% (26/333)
  - 20% (7/35)
  - 28% (27/97)
  - 29% (27/93)

Definition of abnormal ECG

- Arrhythmias
- $2^{nd}/3^{rd}$ degree heart blocks
- Ischemic ST/T wave changes
- Q waves
- Prolonged QTc
- Bundle branch or fascicular blocks
- LVH
- PACs/PVCs
- Sinus bradycardia

What to do instead of universal echo

- Screen all patients for abnormal cardiac history
  - Known CAD
  - Arrhythmia
  - Valvular heart disease
  - CHF
  - Risk factors for cardiac syncope:
    - Age > 60 yrs
    - Men
    - Fainting during exertion
    - Fainting while supine
    - Brief palpitations and sudden loss of consciousness
    - Family history of inheritable conditions
- May be beneficial in setting of abnormal cardiac biomarkers

What to do instead of universal echo

- Abnormal History
- Abnormal ECG
- Abnormal PE
- Abnormal biomarkers
  - proBNP
  - CE

THINGS WE DO FOR NO REASON IN ADULT ACUTE CARE MEDICINE

Prescribing Docusate for constipation in hospitalized adults

Prescribing Docusate for Constipation in Hospitalized Adults

- Constipation matters
  - 2 out of 5 hospitalizations
- Docusate Sodium is one of the most commonly prescribed agents for constipation
  - Estimated that North America alone spends $100,000,000 annually on Colace
  - Canada spends $60,000/yr
    - ¼ on direct drug cost and ¾ admin/labor costs
    - Most frequently prescribed laxative
    - Avg. 10 doses docusate per admission across approx. 17,000 admissions

Docusate Sodium

- Acts as a detergent to retain water in the stool and therefore as a stool softener
- Initial studies were performed in the 1950 and 1960s
- Frequent use exacerbated by:
  - Endorsed by hospital formularies
  - Order sets
  - Patient Information sheets (JAMA Patient Page)
  - World Health Organization lists Colace as an “essential medicine”

Multiple randomized controlled studies failed to show any significant efficacy of Colace over placebo

- 1998: a randomized controlled trial
  - 170 subjects with chronic idiopathic constipation
  - compared psyllium 5.1 g twice daily and docusate sodium 100 mg twice daily with a corresponding placebo in each arm
  - treatment duration of two weeks after a two-week placebo baseline period.
  - Psyllium was found to increase stool water content and stool water weight over the baseline period
  - docusate essentially had no effect on stool water content or water weight.
  - By treatment week 2, psyllium demonstrated an increase in the frequency of bowel movements, whereas docusate did not.
  - This study was funded by Procter & Gamble, which manufactures Metamucil, a popular brand of psyllium.

Multiple randomized controlled studies failed to show any significant efficacy of Colace over placebo

- 2013: randomized controlled trial
  - 74 hospice patients in Canada
  - comparing docusate 200 mg and sennosides twice daily versus placebo and sennosides for 10 days. The study found no difference in stool frequency, volume, or consistency between docusate and placebo.

Is Docusate Sodium benign?

- Increased healthcare costs
  - $100,000,000 for North America alone
  - Absolutely no resources available for invaluable care
- Needless waiting for Docusate to fail before trying alternative therapies.
  - Patient dissatisfier
  - Potential for prolonged length of stay
  - Higher pill burden may cause patients to refuse necessary meds
- Unpleasant taste, lingering aftertaste

What to use instead of Docusate Sodium

- Mobilization
- Chewing gum
- Grade A – Polyethylene Glycol
- Grade B – Psyllium and Lactulose
- More recent study in individuals taking opioids:
  - Polyethylene Glycol, Lactulose and Sennosides
- De-prescribe Docusate Sodium and eliminate from hospital formulary

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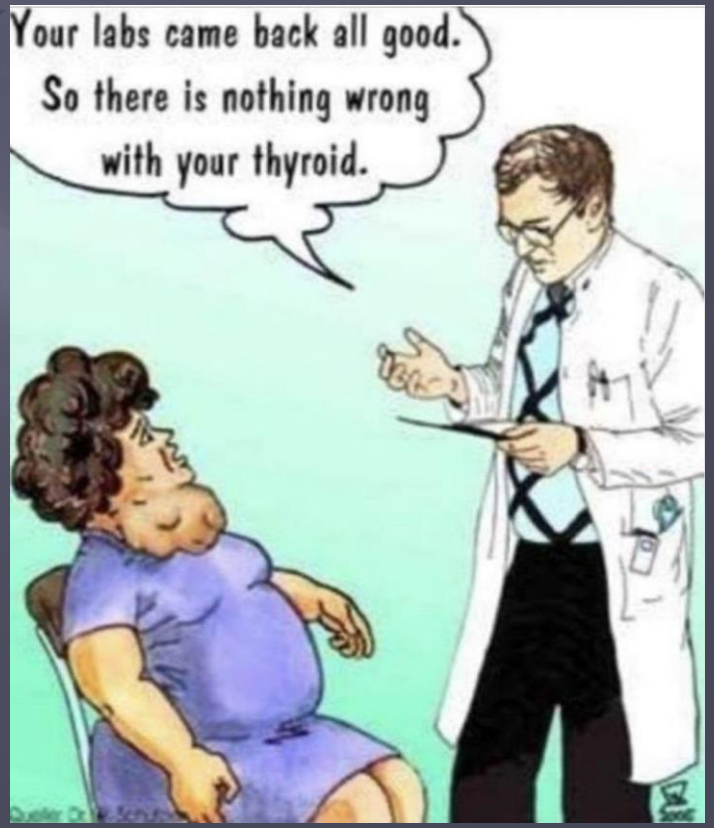
Routine TSH testing in the hospitalized adult



Thyroid Disease

- Prevalence:
  - Hypothyroidism - 4.6%
  - Hyperthyroidism - 1.3%
- Annual Incidence:
  - Thyroid storm – 0.2 per 100,000
  - Myxedema coma – 1.08 per 1,000,000
- Inpatient testing occurs 21-100% of internal medicine admissions
- Facility QI initiatives
  - Reduced frequency of TSH testing by 50%

Primary pitfall of thyroid testing in inpatient medicine

- NTIS (Nonthyroidal illness syndrome)
  - Sick euthyroid syndrome
  - Prevalent in up to 62% of hospitalized patients
  - Not exclusive to critically ill patients
  - No one pattern of thyroid test results are pathognomonic for NTIS

Attia et al.

- Mild abnormalities in TSH REDUCE post-test probability of true thyroid disease
  - TSH 0.1-0.6 mIU/L or 6.7-20 mIU/L
  - Positive likelihood ratio between 0-0.74
- TSH levels <0.01 and >20 have higher likelihood ratios (7.7 and 11.1)
  - Seen far less frequently
- Total number of signs and symptoms is likely most reliable indicator

Adlan et al.

- Reports only 1.2% of tested patients have very abnormal test results
  - 4/751 with TSH <0.01
  - 5/751 with TSH >10

Spencer et al.

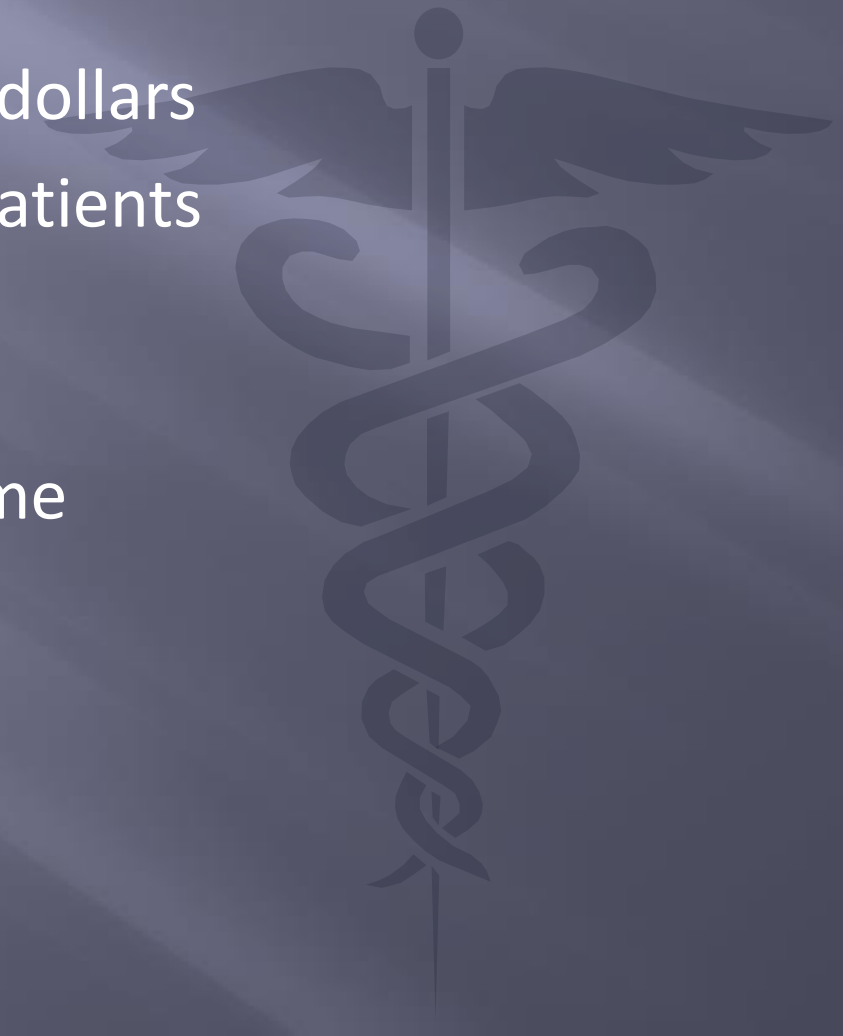
- 1580 patients
- 519/1580 (33%) had abnormal TSH values outside of lab reference range
- Random selection of 329/1580 patients pulled for further analysis
  - 29/329 with true thyroid disease (8.8%)
  - 22/29 patients had TSH levels <0.1 mIU/L or > 20 mIU/L

Bashkin A., Yaakobi E., Nodelman M.

- 1,966 patients
- More than 1 in 10 patients with abnormal TSH (11.8%)
- 52.2% felt to be secondary to NTIS
- 20.7% subclinical thyrotoxicosis
- 18.5% subclinical hypothyroidism
- 0.5% of patients had change in clinical management
  - Of all of these cases, (9 patients), patients were already on a medication known to affect thyroid function, or pretest probability of thyroid-related illness was already high because of clinical presentation

Consequences of Over-testing for thyroid disease in acute care medicine

- Wasted healthcare dollars
- Potential harm to patients
  - Overtesting
  - Overtreatment
- Wasted provider time



Thyroid Disease

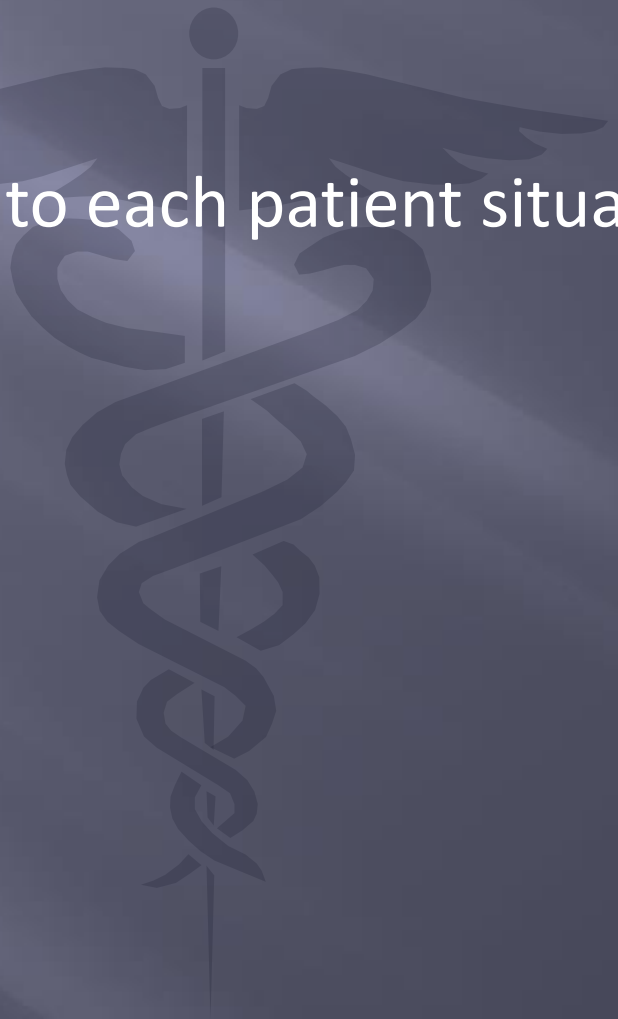
Hypothyroidism	Hyperthyroidism
Fatigue	Nervousness
Dry, coarse skin	Warm, moist skin
Cold Intolerance	Heat intolerance
Bradycardia	Tachycardia, atrial fibrillation
Facial and pretibial edema	Goiter
Constipation	Diarrhea
Weight gain	Weight loss
Hair loss	Sweating
Slow speech, hoarse voice	Lid retraction or lag
Lethargic movements	Tremor

When to perform thyroid testing

- Only in cases of high clinical suspicion
- Higher number of signs and symptoms consistent with thyroid disease
  - 2 symptoms – pretest probability as low as 0.1%
  - 5 symptoms – pretest probability up to 10%
- Afib
- SIADH
- Unexplained Sinus Tachycardia
  - Exclude other causes
- Acute encephalopathy/delirium
  - Exclude other causes

Conclusions and Questions

- More research
- Thoughtful conversations
- Critical-thinking applicable to each patient situation
- Questions



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