Take 3 – Practical Practice Pointers© June 10, 2019 Edition

Subclinical Hypothyroidism, Life Purpose & Health, Clinical Stamina

From the Guidelines

1) Treatment of Subclinical Hypothyroidism

Subclinical hypothyroidism (SCH) is a biochemical state where thyroid stimulating hormone (TSH) level is elevated, but the free T4 (thyroxine) level is normal. It affects somewhere between 4-20% of the population, and is more common in women, older people, and those of white ethnicity. The risk of progression to overt hypothyroidism ranges between 2-5% a year.

While some people may experience symptoms that they attribute to SCH, approximately 1 in 3 patients with SCH have no symptoms. The type of symptoms people link to SCH include those of overt hypothyroidism: fatigue, muscle cramps, cold sensitivity, dry skin, voice changes, and constipation. Other reported symptoms include poor memory, slowed thinking, weak muscles, puffy eyes, anxiety, and depression. Many of these are not specific to hypothyroidism. The relation between symptoms and TSH levels remains unclear, as 20-25% of people with normal TSH levels report one or more of these symptoms.

About 90% of all patients with SCH have TSH levels between 4 and 10 mIU/L. Levels may rise in response to stress and transient disease. Almost 2/3 of TSH levels between 4 and 10 mIU/L normalize without intervention within five years. This biological variation in TSH values, means that one abnormal TSH level should be followed by a repeat blood test to confirm the diagnosis. Since other data have suggested links to overt hypothyroidism and adverse outcomes such as increased risk of coronary heart disease, it is reasonable to ask whether treatment with thyroid hormones might help symptoms, prevent overt hypothyroidism, or avoid longer term heart problems.

This guideline was triggered by a recent systematic review of randomized controlled trials regarding the benefits and harms of treatment of SCH with thyroid hormones. This is particularly important in light of the fact that prescriptions of thyroid hormone replacement therapy for SCH have sharply risen. In 2015, levothyroxine was among the most prescribed drugs in the US.

The guideline panel issues a strong recommendation against the use of thyroid hormones for SCH, concluding that almost all adults with SCH would not benefit from treatment. Other factors in the strong recommendation include the burden of lifelong management and uncertainty on potential harms. Instead, they recommended that clinicians should monitor the progression or resolution of the thyroid dysfunction in these adults. Specifically, the panel concluded:

- Thyroid hormones should not be routinely offered to adults with SCH (strong recommendation according to GRADE).
- Thyroid hormones do not lead to important benefits for adults with SCH for quality of life or thyroid related symptoms including depressive symptoms and fatigue
- Taking a pill and attending periodic testing on an ongoing or lifelong basis is burdensome

- If implemented, this recommendation may substantially alter prescribing trends

This recommendation does not apply to women who are trying to become pregnant or patients with TSH >20 mIU/L. It may not apply to patients with severe symptoms or young adults (such as those ≤30 years old).

My Comment:
This one is practice changing. At the least, it will give me pause prior to my present behavior of automatically starting patients with SCH on levothyroxine with the implicit assumption "it must help ... it's thyroid hormone after all!" It should be noted that in many cases any benefit is non-existent, and there is uncertainty about the potential harms of the unnecessary use of levothyroxine over a lifetime.

References:

- Bekkering G, et al. Thyroid hormones treatment for subclinical hypothyroidism: a clinical practice guideline. BMJ 2019. Published online 14 May 2019. Link
- Feller M, et al. Association of Thyroid Hormone Therapy With Quality of Life and Thyroid-Related Symptoms in Patients With Subclinical Hypothyroidism: A Systematic Review and Meta-analysis. JAMA. 2018;320(13):1349-1359. Link

From the Literature and the 4th Aim

2) Purpose and Mortality

A growing body of literature suggests that having a sense of purpose in life is associated with both physical and mental health and overall quality of life. Purposeful living has been defined in various ways. In general, purpose in life can be defined as "a self-organizing life aim that stimulates goals, promotes healthy behaviors, and gives meaning to life." Individuals lacking purpose in life may feel hopeless and not have motivation to live an active and healthful life. Some studies report that those with a strong purpose in life have better health outcomes for sleep disturbances, stroke incidence, poststroke quality of life, depression, and diabetes. Since there are interventions available to influence life purpose; thus, understanding the association of life purpose with mortality is critical.

This cohort study of almost 7,000 adults examined the association between life purpose and all-cause or cause-specific mortality among people older than 50 participating in the US Health and Retirement Study. Purpose in life was assessed with a 7-item questionnaire from the modified Ryff and Keyes Scales of Psychological Well-being evaluation.

The authors found that life purpose was significantly associated with all-cause mortality, specifically that participants who had the lowest life-purpose scores were twice as likely to have died than those with the highest scores. They concluded that the results indicated that stronger purpose in life was associated with decreased mortality and that purposeful living may have health benefits. Future research was encouraged focusing on evaluating the association of life purpose interventions with health outcomes, including mortality. In addition, understanding potential biological mechanisms through which life purpose may influence health outcomes would be valuable.

My Comment:

While this recent study was based on correlative data, the evidence suggests that having a strong sense of purpose can impact health and longevity. Certainly, having something to get up for in the morning and a sense that one's life is making a positive difference will lead to a more fulfilling life. We who have devoted our careers to caring for others certainly have this opportunity every day. Now, if we could only find a sustaining formula to address/prevent professional burnout, which I would hypothesize does not lead to increased longevity. That's a study waiting to be done!

For those who would like to reflect more on how you are living out your own life purpose, **see the "Purpose Check-up" tool at the 2nd link under references.** I believe such an exercise (along with discussing it with someone you are close to) is worthwhile to do on a regular basis.

References:

- Alimujiang A, et al. Association Between Life Purpose and Mortality Among US Adults Older Than 50 Years. JAMA Netw Open. May 24, 2019;2(5):e194270. Link
- Leider, R. Purpose Check-up. 2018. Link

From the Literature and the 4th Aim

3) Clinical Stamina Over the Course of a Work Day

Data indicate that those who practice of primary care medicine experience predictable variation in their care as the day progresses. Previous studies found that influenza vaccination rates began around 44% in the morning but then steadily decreased to 32% by the end of the day. These patterns have also been found to exist for other behaviors, including higher rates of inappropriate antibiotic prescriptions, higher rates of opioid prescribing for back pain and lower rates of appropriate handwashing.

Explanations for this variation include more rushed interactions as clinicians fall behind in their schedule, and decision fatigue, which is defined as the depletion of self-control and active initiative that results from the cumulative burden of decision making. These tendencies may lead to suboptimal care for patients with clinic appointment times later in the day.

It is known that underuse of cancer screening tests is common. The CDC estimates that among patients who meet guideline recommendations, approximately 37% of adults have not been screened for colorectal cancer, and 28% of women have not been screened for breast cancer. This study was designed to look for any association between breast and colorectal cancer screening rates and the time of day a patient visits the primary care clinician. Primary outcome was clinician ordering of the screening test during the visit. Secondary outcome was patient completion of the tests within 1 year of the visit. It included 33 primary care practices and almost 20,000 patients eligible for breast cancer screening and 34,000 patients eligible for colorectal cancer screening.

The authors found that screening test order rates for colorectal cancer were highest at 8 AM at 64%, decreased throughout the morning to 49% at 11 AM, increased to 56% at noon, and then decreased to 48% at 5 PM ($P < .001$). Trends in screening test completion rates were similar beginning at 33% at 8 AM and decreasing to 18% at 5 PM ($P < .001$). For breast cancer screening, test order rates were 37% at 8 AM, decreased

to 31% by 11 AM, increased at noon to 34%, and then decreased to 23% at 5 PM ($P < .001$). Trends in screening test completion rates were similar beginning at 28% at 8 AM and decreasing to 18% at 5 PM ($P < .001$).

The authors concluded that clinician ordering of cancer screening tests significantly decreased as the clinic day progressed. Patient completion of cancer screening tests within 1 year of the visit was also lower when the primary care appointment time was later in the day. Future interventions targeting improvements in cancer screening should consider how time of day may influence these behaviors.

My Comment:
In many ways, this data should not be surprising. Many busy clinicians go through their entire clinical day without even taking the equivalent of a "time out" or a "half-time." One can imagine the results would be no different for an athlete who "gives 100%" the entire game. They'd have nothing left by the end of the game. I've not seen similar date regarding inpatient or emergency care, but disturbingly, I'd imagine the results for performance variation would be similar.

The bigger question is, "what can be done about it?" Awareness raising is an important first step. Human factors research would indicate that creating processes of care that remove the "human element" when not necessary is also vital. This would certainly be true with ordering screening tests. Taking regular "time-outs" during the clinical day would also seem wise. True team-based care, including checking in regularly with one another (imagine if a football team only had one huddle at the beginning of the game!) would seem prudent. Diligent self-care would also seem essential, both during the clinical day and between.

Together, we can do better, and I'm confident that locally and nationally steps are being taken to do just that. The good news is that the science around processes of care is a young and growing one, with much "low hanging fruit" waiting to be harvested. Let's get to work!

Reference:
Hsiang EY, Mehta SJ, Small DS, et al. Association of primary care clinic appointment time with clinician ordering and patient completion of breast and colorectal cancer screening. JAMA Netw Open. 2019;2:e193403. Source

Feel free to forward Take 3 to your colleagues. Glad to add them to the distribution list.

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