

Managing Uncertainty

By Philip A. Baer, MDCM, FRCPC, FACP

"We crave explanations for most everything, but innovation and progress happen when we allow ourselves to embrace uncertainty."

– Simon Sinek, author and inspirational speaker

Two referrals came in this week on patients I had seen before. Patient #1 had been seen four years ago with an isolated stably high CK¹ in the hundreds, not on statin therapy, not hypothyroid, with no rash, weakness or muscle atrophy. I provided reassurance and sent them back to their primary care provider. Patient #2 had been seen 10 years ago, with a positive ANA² test 1/640 speckled/homogeneous, a relative with rheumatoid arthritis (RA), and mild fatigue and arthralgias. The patient was hypothyroid, the most likely cause of her positive ANA, in my view. Everything else on history and examination was negative. The patient was reassured, a few extra tests were done and found to be negative (RF³, ENA⁴, anti-dsDNA⁵ and urinalysis), and the patient was sent back to primary care. In neither case did I suggest serial testing of the abnormal lab parameters.

I don't lose sleep over isolated lab abnormalities, but patients and primary care physicians seem to be more troubled by the perceived uncertainty engendered by red numbers on the lab results tab in the electronic medical record (EMR). Patient lab portals have led to increased queries about abnormalities of the RDW⁶, MCH⁷, and other tests which are not specifically requested, but for which results are received nevertheless. The lab macro that accompanies every positive ANA doesn't help: "could be a sign of ..."

Medicine is all about dealing with uncertainty, as is life in general. The effects of a treatment, good or bad, are based on probabilities. Evidence-based medicine is great, but what about all the situations where there is no evidence (rare disease, no randomized controlled trials) or the evidence is in conflict (just look at recent COVID-19 vaccine guidelines, for instance)? Patients still need to be treated in the here and now, and decisions need to be made.

Can the "uncertainty principle" help us? Heisenberg's uncertainty principle in its standard form describes how precisely we may measure the position and momentum of a particle at the same time — if we increase the precision in measuring one quantity, we are forced to lose precision in measuring the other. Well, that may be true in quantum mechanics, though hotly debated. No help with our patients.

If ordering a test won't change what you do, don't order it. Good advice. Once ordered and abnormal, that lab result is like an itch that must be scratched, it seems. Whether driven by the patient or the physician, that ANA or CK is going to be repeated, often for no good reason.

Patient #2 turned up first. She had changed family doctors and had complained again of mild fatigue and arthralgias. The ANA recheck was positive again at a lower titre of 1/160 speckled/homogeneous. I could see that readily from my old records, and the general practitioner (GP) could have found that in the government lab database if they had looked. Nothing else had changed, and my conclusion was the same. More reassurance provided ("likely related to your thyroid; positive ANA is seen in 13-15% of the general population"), no need to repeat the ANA in future ("it will be positive for life"), and my usual offer to reassess ("your family doctor can call me with any questions; I am happy to see you again if the need arises"). Interestingly, shortly before seeing me, the patient had seen another rheumatologist, whose workup included negative MRIs of both hands, which would not have occurred to me, but every generation of rheumatologists has their favourite test.

Patient #1 also eventually returned with their high CK. Still asymptomatic, not on any medication, no link to strenuous exercise, no family history of myopathy or neurologic disorders, and no weakness, rash or interstitial lung disease. Maybe this patient's high CK was a function of gender and race/ethnicity, though I am increasingly suspect of that explanation, given all the recent revelations about correcting eGFRs⁸ and PFTs⁹ based on such criteria. Another round of reassurance for the GP, as the patient was sure they were healthy and didn't seem to need my opinion on that matter.

As a counterexample, recent Patient #3 was a 51-year-old man referred by their GP on the advice of an orthopedic surgeon, who evaluated the patient for recurrent ankle and foot pain and found nothing to operate on. The history was classic for gout, but the patient said that had been ruled out by their GP, as the uric acid level was always normal. Well, of course, it could be normal during an acute attack, but the lab database revealed levels of 530, 484 and 465 $\mu\text{moles/L}$ over the last few years. The only problem was that the lab had set the upper limit of normal at 512, nowhere near the optimal or treat-to-target value of 360. So, in the EMR, the 484 and 465 values were shown in black ("normal"), not red. The patient was relieved to find out he was no longer a "medical mystery."

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Similarly, Patient #4 was referred for worsening osteoporosis. A recent BMD¹⁰ provided sequential results between 2000 and 2018. Interestingly, the actual BMD in grams/cm² was virtually the same at the start and end of this long observation period. However, the column labeled “BMD change” showed an unrelenting series of minus signs. Obviously, something had gone wrong in the algorithm. Otherwise, this would be analogous to the imaginary Penrose stairs made popular by the artist MC Escher and the movie “Inception,” a staircase in which the stairs make four 90-degree turns as they ascend or descend yet form a continuous loop, so that a person could descend them forever and never get any lower. I earned my consult fee for figuring that out and congratulated the patient on maintaining the same BMD despite aging by 18 years. No treatment required!

A typical week at the office: uncertainty mitigated for the first two patients, and certainty provided for the last two patients. Medicine is always interesting.

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Glossary:

1. CK: Creatine kinase
2. ANA: Antinuclear antibody
3. RF: Rheumatoid factor
4. ENA: Extractable nuclear antigen
5. Anti-ds DNA: anti-double-stranded DNA
6. RDW: Red Cell Distribution Width
7. MCH: Mean corpuscular hemoglobin
8. eGFR: Estimated glomerular filtration rate
9. PFT: Pulmonary function test
10. BMD: bone mineral density

WELCOME TO THE RHEUM

Welcome to the following new CRA members:

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| Amanda Hu, London, ON | Barbara E. Walz, Mississauga, ON |
| Allyson Jones, Edmonton, AB | Madina Weiler, London, ON |

NOTE: Based on feedback we received, we have added some clarification regarding the article “How to Get More Buck for Your Bang! The Ins and Outs of SR&ED credits,” published in the Spring 2021 issue of the CRAJ. Please visit craj.ca to view the article and the clarification.