"Measuring & Improving Metabolic Health to Prevent or Reverse Disease"

Webinar Questions Answered by Tom Rifai, MD, FACP

Please note that these are brief answers to complex questions and are not meant as medical advice. Please seek medical advice for more complete information.

- I'm new to the idea of requesting fasting insulin for my patients. Is there typically a charge for this lab? And how would you encourage I phrase the request to the physicians I work with to increase the likelihood they'll be willing to order it for me? (I work with the oncology population).

  Thank you for asking and for your service to oncology. Should be no unusual charge for fasting insulin as long as ICD10 coding included (and I'd bet oncology codes - especially known to be associated with insulin resistance cancers like breast and lung cancer - would work too). Should always be ordered in conjunction with fasting glucose. Again, in my opinion, a fasting glucose less than 100 mg/dL come if again, in my opinion, a fasting glucose less than 100 mg/dL, if not less than 80 mg/dL, in conjunction with a fasting insulin of no more than 5MIU/L, reflects excellent insulin sensitivity. I personally believe that fasting for 8 hours is adequate. If fasting insulin is still elevated above ideal after 8 hours of not eating, it reflects a potential actionable item via lifestyle - ie typically, healthy body fat reduction. Leverage ICD 10 codes E88.81 if metabolic syndrome or R73.09 if prediabetes, for billing. Keep in mind that fasting insulin does not play a role in autoimmune forms of diabetes (ie type 1 or LADA), nor advanced type 2 diabetes, where there is already substantial pancreatic beta cell destruction, or burn out, respectively, as insulin levels may be low. But they would be low due to beta cell destruction, not insulin sensitivity.

- Some females have low ferritin due to anemia (such as with endometriosis), any idea what ferritin levels might be seen if possibly also pre-diabetic or diabetic?

  In such cases the low iron would actually be advantageous against their insulin resistance. Even when there's inflammation, if there is low iron storage, ferritin will not be elevated. I would be careful to iron supplements such patients only to a level of ferritin around 75–150. The word is an acute phase reactant, if chronically elevated it reflects real excess iron storage. IR-HIO (Insulin resistance hepatic iron overload) is typified by hyperferritinemia (>200ug/L in females; >300 in males) with normal iron saturation. IR-HIP is less severe in an individual than is hemochromatosis. But IR-HIO is probably ~10 times more common. This article in the journal Diabetes Care is still one of the best as an overview/review: https://diabetesjournals.org/care/article/28/8/2061/23868/Prevalence-of-Body-Iron-Excess-in-the-Metabolic

- Are you seeing any kidney damage due to the use of Remdesivir for COVID treatment?

  I've never prescribed it. I did find this article which may be of interest: https://pubmed.ncbi.nlm.nih.gov/34787281/

- Any problem with high soy intake and thyroid function?

I'm not sure how we are defining high here, but generally I am a healthy skeptic re concern with a level of soy intake consistent with the longest lived population as yet ever recorded on earth and who has what would be considered high soy intake, the Japanese Okinawans. This is an excellent meta-analysis and the conclusion speaks for itself, but there are lots of details to dig . https://www.nature.com/articles/s41598-019-40647-x In terms of those with established hypothyroidism, such as from Hashimoto's and are taking regular thyroid supplement, it is probably prudent to separate taking thyroid supplements from soy intake. for instance, taking thyroid tablets in the morning and then feeling free to enjoy edamame, tofu, soy milk etc. from lunch onward. There's some endocrinologist would argue that it's fine to take thyroid soy supplement so long as it is done on a consistent basis, such as a cup of soy milk essentially every morning right after taking thyroid supp.

- Could you elaborate on ApoB factor regarding heredity and an individual's LDL blood levels?

  The heredity lipid issue discussed was re Lipoprotein(a) - aka Lp(a). What is the most common heritable lipid disorder. ~ 20 to 25% of us come overall, have levels above optimal. I believe it's worth checking at least once in a lifetime because occasionally spontaneous mutations happen. even if there's already established vascular disease, it can be helpful for first-degree family members such as siblings and children to know, be tested and therefore be vigilant. Lipoprotein eight does contribute to LDL, but due to the unique side chain is not reduced by Statin therapy. PCKS9 inhibitors can lower lipoprotein(a) but they are exceedingly expensive at this time and unrealistic to discuss for general lipid management. The only lifestyle measure that has been shown to significantly reduce Lipoprotein(a) is reduction in trans fat intake. Since industrial trans fats have essentially been banned, that is no longer a notable issue. The nonmodifiable directly, it is good to know if someone has a very high level because the more vigilance can be taken on all of the modifiable factors that drive atherosclerosis including blood pressure, insulin resistance and the modifiable fraction of lipids, including the triglycerides and all of the non-HDL that is unrelated to Lipoprotein(a). I for instance have a very high Lipoprotein(a). Due to it, the odds were that my coronary calcium score would be elevated by my 50s. But my coronary calcium score is still zero, and I am highly motivated to maintain optimal lifestyle within all reason thanks to the knowledge of my Lipoprotein(a). Regarding apoB, it is, along with NMR Lipoprofile measured LDL particle concentration, The gold standard for measuring atherogenic particles. But Lp(a) must be measured separately and if elevated must be considered a separate risk factor, though there is reasonable evidence that once you drive non-HDL/LDL particle concentration/ApoB down low enough (eg <100mg/dL/<1000nmol/L/<100mg/dL, respectively) lipoprotein(a) is less of a risk factor than when non-HDL and/or LDL particle concentration and/or ApoB are elevated.

- What is the recommended treatment approach for someone who is at normal body weight with pre-diabetes?

  Ideally get a DEXA body comp analysis with attention to visceral fat content. The begin working on resistance training combined with increased levels of NEAT, repeating DEXA body comp in six months to see if there's been a shift in muscle/fat ratio, particularly visceral fat. Additionally, work on quality, if the quantity, of calorie sources. minimizing CRRAHP (calorie rich, refined and highly processed) food and beverages is still important, irrespective of body weight. keep in mind, as we discussed, pre-diabetes with "normal" body weight does not guarantee, but certainly increases the need to be vigilant about looking for LADA and MODY. Presuming neither of those issues - which we briefly discussed - is the driving cause of the

patient's pre-DM, then could still consider a moderate dose of metformin extended release in addition to, not in lieu of, therapeutic lifestyle changes.

- If you see a patient with an elevated HgA1c, normal body weight and does not have excessive body fat, however their diet is poor (high in refined carbs/sugar etc), would you only trial diet and lifestyle change at first? Or would you run other labs immediately to rule out autoimmune causes?

  I would do both concurrently. Lifestyle is never wrong.

- If iron is proinflammatory, does that mean you do not recommend a high protein diet for weight loss?

  Not necessarily. There are many low iron sources of animal protein, presuming that is what you mean by "protein", including but not limited to Greek yogurts, egg whites and modest portions of seafood. Additionally, not precisely sure what is meant by high protein. During weight reduction, certainly healthy protein intake is the last thing one would want to reduce as we are trying to maintain lean tissue mass during body fat reduction. Therefore, one could get a reasonable guess, presuming decent levels of physical activity, regarding protein needs by One of the few times I find BMI useful… That is to determine the weight that one would be at a BMI of 20 (using the patient's height), and targeting total protein intake to about that "weight at BMI 20" number in terms of grams of protein per day. Divide up that number over at least three different settings. Do keep in mind that they are excellent plant sources of protein as well, particularly legumes like lentils and edamame. If you'd like more information on Flex5 nutrition, I have a reasonably priced multiple hour video course for $99 at DPM.DrTomRifai.com/nutrition