ENDOCRINOLOGY
DIVISION NEWS
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AACC Better health through laboratory medicine.

THE RECEPTOR

Message from the Chair

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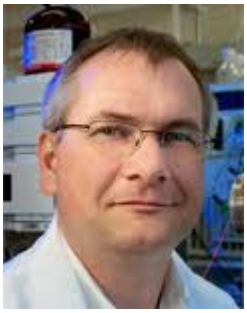

Dear Endocrinology Division Members,

It is hard to believe that 2015 is almost over. With your vote on the bylaws this year, we fully established our Division within the AACC. As part of implementing the bylaws, I am very glad to have Dr. Stanley Lo from Medical College of Wisconsin, Milwaukee, WI joining the Division leadership as our communication officer. We had a very successful membership meeting at the annual AACC meeting with great speakers and presentations, and I would like to thank the speakers as well as those who helped to organize the meeting for their work and contributions. Also, for the first time, we provided continuing education credits for this event, which was highly appreciated by the attendees. Because of the positive feedback we received, we will keep offering these educational activities at next year's meeting.

To further facilitate communication among our members, we will have an endocrinology group listed in AACC Artery. Details are provided in in this newsletter.

Speaking of next year, while we continue building partnerships to support and advance the relationship of clinical endocrinology with laboratory medicine and patient care for a wide range of topics, we plan to feature Reproductive Endocrinology as our special focus next year, with presentations, discussions, and hopefully a webinar.

Effective diagnosis and treatment of reproductive disorders that affect children, women, men, including infertility in both men and women highly depends on the availability of good data and the expertise provided by the lab professionals. Several guidelines and clinical practice documents related to these disorders were published over the past few years in which laboratory data are key components in clinical decision making. New analytes, such as anti-mullerian hormone, are increasingly used to aid in patient assessment. Our focus on this area in 2016 will allow us to inform you about recent guidelines and clinical practice documents, and the role of the laboratory. We plan on providing updates on new biomarkers and technologies, and on discussing current research and challenges in the field of reproductive endocrinology.

While we are preparing different activities, I would like to invite you to participate in our discussions and in the planning of events. Please feel free to contact us with questions and suggestions.

I wish you all a great holiday season and am looking forward to working with you next year.

Hubert

Endocrinology Division is live on the Artery

The Endocrinology Division is up and running on AACC Artery. Two posts already exist with this group. One address the subject of autoimmune hypoparathyroidism and the other discusses the specificity of cortisol immunoassays in the post-operative management of Cushing disease following a pituitary adenoma resection. We plan on providing more posts as we move forward, however please feel free to use this forum to discuss other issues that interest you. Check it out!

Opinions in Endocrinology

When not to measure thyroid function

Reflections on the sick euthyroid syndrome (non-thyroidal illness): An Opinion

By William E. Winter, MD

A pathology resident recently sought my counsel. A sick newborn had had FT4, TSH and total T3 all measured and all results were within their reference intervals. The clinical team was now requesting a total T4. The “story” was that the clinical team was “seeking (?)” the diagnosis of sick euthyroid syndrome (a.k.a. – non-thyroidal illness). We did not approve the request for the total T4 (which is not run in-house). Even if the clinical team were requesting a reverse T3, we would not have approved the request even if the total T3 were low with TSH and FT4 results within the reference interval (which would be a classical early pattern for sick euthyroid).

I said to the resident: “Sick euthyroid syndrome is not a diagnosis that we pursue. Sick euthyroid syndrome may be the diagnosis when thyroid function is studied in severely acutely ill or chronically ill patients. When we measure thyroid function, we should be seeking hypo or hyperthyroidism.”

Excluding newborn thyroid screening, the learning issue here is that inpatient testing of thyroid function should only be considered when thyroid dysfunction could be contributing to disease that would require to emergent therapy related to the patient's thyroid status. Situations where thyroid function might be justified in inpatients include the following 3 scenarios:

[1] A patient presents with "totally unexplained" heart failure and there is historical and/or clinical evidence to suggest that hypothyroidism could be the cause. If hypothyroidism were diagnosed, acute and careful thyroxine (T4) replacement would be indicated.

[2] A patient presents with "totally unexplained" coma and there is historical and/or clinical evidence to suggest that hypothyroidism could be the cause. If hypothyroidism were diagnosed, acute and careful thyroxine (T4) replacement would be indicated.

[3] A patient presents with "totally unexplained" high-output heart failure and there is historical and/or clinical evidence to suggest that hyperthyroidism and thyroid storm could be the cause. If hyperthyroidism were diagnosed, anti-thyroid therapy would be indicated. It is important to note that thyroid storm is a clinical diagnosis and is not a laboratory diagnosis although biochemical hyperthyroidism must be present.

So what tests should be done in these situations?

For cases [1] and [2], if the hypothalamus, hypothalamic-portal system and pituitary are believed to be functionally intact, measure TSH. If the TSH is elevated, measure FT4. An elevated TSH and low FT4 is consistent with primary hypothyroidism. A persistently elevated TSH and a FT4 persistently within the reference interval is subclinical hypothyroidism. It is difficult to believe that subclinical hypothyroidism by itself could cause coma or heart failure.

For case [3], if the hypothalamus, hypothalamic-portal system and pituitary are believed to be functionally intact, measure TSH. If the TSH is depressed, measure FT4. A low TSH and an increased FT4 is primary hyperthyroidism. If the TSH is depressed and the FT4 is within the reference interval, measure T3. If the T3 is within the reference interval, causes of suppressed TSH should be sought (e.g., dopamine, glucocorticoid administration or somatostatin analogs). Otherwise, a persistently low TSH with FT4 and T3 within the reference intervals is consistent with subclinical hyperthyroidism. A low TSH with the FT4 within the reference interval and an elevated T3 is consistent with T3 toxicosis.

My final message regarding inpatient thyroid testing is: "Less testing = happiness!" Unless the clinical team believes that the inpatient falls into one of the 3 categories above, DON'T order thyroid function testing. The results are often confusing and difficult to interpret. Do not seek the diagnosis of sick euthyroid syndrome. There is no

convincing data that treating sick euthyroid syndrome improves outcome. If treatment does not improve outcome, why test?

FYI: Sick euthyroid syndrome is reviewed in: Winter WE, Schatz, D., Bertholf RL: The Thyroid: Pathophysiology and Thyroid Function Testing. In: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, 5th Edition, C Burtis, E Ashwood, D Bruns (eds), Elsevier Saunders, St. Louis, Mo, 2012; pp. 1905-1944.