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THERAPEUTIC USE OF PLASMA EXCHANGE IN THYROID STORM REFRACTORY TO CONVENTIONAL TREATMENT

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Harold Henrison Chiu,¹ Jim Paulo Sarsagat,¹ Angelique Bea Uy,² Dianne Corpuz,² Hydeline Dominguez,² Josephine Anne Lucero-Sacdalan,³ Elizabeth Paz-Pacheco²

¹Department of Medicine, Philippine General Hospital-University of the Philippines Manila

²Division of Endocrinology, Department of Medicine, Philippine General Hospital- University of the Philippines Manila

³Division of Hematology, Department of Medicine, Philippine General Hospital- University of the Philippines Manila

INTRODUCTION

Thyroid storm is a serious life-threatening condition resulting from uncontrolled hyperthyroidism with mortality rates reaching 30%. First-line treatment includes high doses of propylthiouracil, methimazole, potassium iodide, beta blockers, steroids, radioactive ablation and thyroidectomy. Patients poorly tolerant or have contraindications to medical therapy, or poor surgical candidates may require alternative treatments. Therapeutic plasma exchange (TPE) is a potential modality by rapidly removing thyroid hormones, antibodies and cytokines in plasma; it is listed by the American Society of Apheresis (ASFA) as Class III indication; its optimal role has not been established and initiation, based on the latest American Thyroid Association (ATA) 2016 guidelines, has mainly focused on patients responding poorly to traditional therapeutic measures.

CASE

We report a 49-year-old female in thyroid storm presenting as fever, jaundice, tachycardia, and diarrhea who was unable to tolerate both propylthiouracil and methimazole, and was a poor surgical candidate. TPE was performed for one cycle while propylthiouracil initiated at a lower dose. Over the treatment course, thyroid hormones normalized [FT3 (23.91 to 2.30 pmol/L) and FT4 decreased (64.35 to 13.18 pmol/L)]. However, symptoms progressed: sinus rhythm became atrial fibrillation, sensorium deteriorated to comatose, and was persistently hypotensive despite vasopressors. She eventually expired on her 7th hospital day from multiorgan failure.

CONCLUSION

TPE having only transient effects in thyroid hormone levels should ideally be used in conjunction with anti-thyroid medications and initiated early in the setting of clinical deterioration, without waiting for the effects of conventional treatment to take effect.

KEY WORDS

thyroid storm, thyroid hormones, plasmapheresis

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CARDIAC SYNCOPE DUE TO ATRIAL FIBRILLATION IN SLOW VENTRICULAR RESPONSE WITH PAUSE AS A CLINICAL MANIFESTATION OF HYPERTHYROIDISM

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Elham Jaji, Shareefa Huda Mandangan, Walid Amil, Lowe Chiong, Jerome Barrera, Sarah Laida Isnani
Department of Internal Medicine, Zamboanga City Medical Center, Zamboanga City, Philippines

INTRODUCTION

Hyperthyroidism commonly affects the heart causing cardiac arrhythmias particularly sinus tachycardia or supraventricular tachyarrhythmias. Atrial fibrillation (AF) in slow ventricular response is typically not reported in such patients.

CASE

A 58-year-old male without co-morbidities initially consulted at the emergency department due to body malaise. At the ER, he had sudden onset of loss of consciousness. Initial ECG showed atrial flutter with pause. He was subsequently admitted at ICU where further work up was done.

CONCLUSION

Thyrotoxicosis exerts clear influences on electrical impulse generation and conduction. Numerous possible mechanisms could be considered for the effect of thyroid hormones on AF risk. Reentry has been assumed as one of the main mechanisms leading to AF. However limited literature talks about AF in slow ventricular response with pauses in hyperthyroid patients. In theory, if the patient achieved euthyroid state, ideally symptoms should improve, nonetheless pacemaker was opted for this patient.

KEY WORDS

hyperthyroidism, atrial fibrillation in slow ventricular response, pacemaker