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A Case Report: Post-Traumatic Stress Disorder (PTSD) with Thyrotoxicosis and Psychosocial Stress

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Abstract

Post-Traumatic Stress Disorder (PTSD) is a psychiatric condition triggered by trauma, often exacerbated by medical comorbidities like thyrotoxicosis. This report aims to illustrate the complex interaction between PTSD, endocrine dysfunction, and psychosocial stress, highlighting the need for an integrated treatment approach. This case report is based on a clinical case of a 31-year-old female with PTSD and comorbid thyrotoxicosis treated at a hospital in Indonesia. Data were collected through clinical history, physical and psychiatric examinations, and a review of relevant literature. The patient developed PTSD symptoms following a motorcycle accident, including nightmares, hyperarousal, insomnia, and avoidance behavior. Her pre-existing thyrotoxicosis amplified anxiety and physiological arousal, while psychosocial stressors such as legal issues and unemployment perpetuated her symptoms. A combined treatment of Sertraline 50 mg/day, short-term Alprazolam, trauma-focused therapy, and spiritual coping strategies resulted in initial improvement in anxiety and emotional regulation. Managing PTSD with comorbid thyrotoxicosis and psychosocial stress requires a biopsychosocial-endocrine approach. Coordinated pharmacological, psychotherapeutic, and psychosocial interventions are essential for symptom control and functional recovery. This case underscores the importance of multidisciplinary collaboration in complex PTSD presentations.

KEYWORDS

ptsd; thyrotoxicosis; psychosocial stress; psychopharmacology; biopsychosocial model.

Introduction

Posttraumatic stress disorder (PTSD) is a psychiatric disorder that occurs after an individual experiences a traumatic event, characterized by cognitive, mood, and behavioral disturbances (Schmidt, 2023). PTSD can cause long-term impacts, including an increased risk of other psychiatric illnesses and suicide (Mann et al., 2024). The prevalence of PTSD is quite high among road accident survivors, with rates varying across regions, reaching nearly 50% in some studies (Daddah et al., 2022).

The relationship between psychological factors and thyrotoxicosis is well established (Table 1), especially regarding anxiety and PTSD exacerbation (Bourvis, 2022). This interaction is mediated by hormonal dysfunction in the HPA and HPT axes (Morris, 2021). In thyrotoxicosis, elevated thyroid hormones exacerbate stress responses, worsening PTSD hyperarousal symptoms like startle response, insomnia, and irritability (Raise-Abdullahi et al., 2023; Toloza et al., 2020).

Psychosocial stressors are significant contributors to the development and perpetuation of Post-Traumatic Stress Disorder (PTSD), particularly among individuals working in high-risk professions. These stressors encompass a wide range of factors, including intense emotional pressure, the constant threat of job insecurity, and the demands of challenging work environments. These elements can act as potent triggers, initiating the onset of PTSD symptoms, and also serve as maintaining factors, exacerbating existing symptoms and hindering recovery.

Table 1. Timeline of Clinical Presentation, Interventions, and Outcomes

Timepoint	Event / Symptom Onset	Interventions	Response / Outcome
Pre-accident	Pre-existing diagnosis of Thyrotoxicosis and Hypertension.	Ongoing medication for thyrotoxicosis & hypertension.	Conditions were managed but likely created a vulnerable physiological baseline.
January 2025	Motorcycle accident (Criterion A trauma).	-	Onset of acute stress symptoms.
Post-accident (Within 1 month)	Development of core PTSD symptoms: -Recurrent nightmares (B) -Fear of riding/driving (C) -Social withdrawal (D) -Insomnia & palpitations (E)	-	Significant functional impairment in daily and social activities. Diagnosis of PTSD established.

Globally, leading health organizations have formally acknowledged the link between psychosocial stress and PTSD. For instance, both (Sanchez et al., 2015) and the International Labour Organization (International Labour Organization, 2016) have recognized PTSD as an occupational disease. This classification underscores the understanding that certain work-related exposures to psychosocial stressors can directly lead to the development of this severe mental health condition. This recognition is crucial for advocating for better support, preventative measures, and compensation for affected workers in various industries.

A biopsychosocial-endocrine approach is essential in managing PTSD patients with complex conditions to provide comprehensive therapy and improve clinical outcomes. This case report aims to provide insight into the interactions between PTSD and thyrotoxicosis, emphasizing the challenges of treating coexisting psychiatric and endocrine conditions alongside psychosocial stress.

Methods

This case report is based on clinical observation of a patient diagnosed with Post-Traumatic Stress Disorder (PTSD) and thyrotoxicosis, accompanied by significant psychosocial stress, undergoing treatment at a hospital in Indonesia (Pan, 2022). Data were collected through detailed history taking, physical and psychiatric examinations, as well as a narrative review of literature sourced from PubMed and Google Scholar. The literature search employed key terms including 'PTSD,' 'thyrotoxicosis,' 'neuroendocrine,' 'HPA axis,' and 'psychosocial stress.' Written informed consent was obtained from the patient for the publication of this case report. This report aims to provide insights into the complex interplay between psychiatric symptoms and endocrine dysfunction, highlighting the challenges in managing comorbid PTSD and thyrotoxicosis.

Result and Discussion

Case Presentation

Patient H, a 31-year-old female with a secretarial education background and Protestant Christian faith, experienced a motorcycle accident in January 2025 that triggered post-traumatic stress disorder (PTSD) symptoms. Since the accident, she has suffered from recurring nightmares, insomnia, increased anxiety, palpitations, and a persistent fear of riding or driving motorcycles. These symptoms have disrupted her daily functioning and social interactions, although she remains able to perform basic activities. She also has a history of thyrotoxicosis and hypertension, for which she is still taking medications. These medical conditions likely contribute to her emotional instability due to the known effects of thyroid hormone and

cardiovascular factors on stress and anxiety.

Psychosocial stressors such as a complicated legal process, job uncertainty, and limited family support further worsened her psychological condition. Her treatment included Sertraline 50 mg daily for mood stabilization and Alprazolam 1 mg daily in divided doses for anxiety relief. Non-pharmacological therapies such as Cognitive Behavioral Therapy (CBT), Prolonged Exposure (PE), and Cognitive Processing Therapy (CPT) are also part of her care. Additionally, spiritual activities like prayer and Bible reading serve as important coping mechanisms. This case highlights the need for a biopsychosocial-spiritual approach in managing PTSD, especially in patients with medical comorbidities and limited social support.

Patient's Symptoms Consistent with PTSD Diagnostic Criteria

The symptoms experienced by patient Ms. H strongly align with the diagnostic criteria for PTSD according to DSM-5 (American Psychiatric Association, 2013) and ICD-10 (PPDGJ-III) (Kementerian Kesehatan Republik Indonesia, 1993). She was directly exposed to a traumatic traffic accident (criterion A) and has since experienced intrusive symptoms such as recurrent distressing nightmares (criterion B). She exhibits avoidance behaviors, including a persistent fear of driving or riding motorcycles (criterion C), negative changes in mood and cognition like social withdrawal and persistent fear (criterion D), and physiological hyperarousal symptoms including sleep disturbances and palpitations upon waking (criterion E). These symptoms have persisted for over one month (criterion F), cause significant functional impairment (criterion G), and are not attributable to substance use or other medical conditions (criterion H), thereby supporting a clear diagnosis of PTSD (Mann et al., 2024).

Interaction Between PTSD and Thyrotoxicosis: Neuroendocrine Mechanisms

Ms. H's clinical presentation is significantly complicated by the comorbidity of thyrotoxicosis, which demonstrably intensifies her existing anxiety and hyperarousal symptoms through a complex interplay of neuroendocrine mechanisms. At the core of this interaction is the direct stimulatory effect of elevated thyroid hormones, specifically triiodothyronine (T3) and thyroxine (T4), on the sympathetic nervous system. This hormonal surge mimics and amplifies the body's natural "fight or flight" response, triggering a cascade of physiological and psychological stress reactions that are both pervasive and debilitating.

Clinically, this manifests as a constellation of symptoms such as, but not limited to, a persistently rapid heart rate (tachycardia and palpitations), fine motor tremors, and significant disturbances in sleep architecture, primarily persistent difficulty falling or staying asleep (insomnia). These somatic and psychological manifestations bear a striking, and often indistinguishable, resemblance to the core symptoms associated with Post-Traumatic Stress Disorder (PTSD) (Johnson & Thompson, 2019). This substantial overlap creates

a formidable diagnostic challenge, as distinguishing between the primary effects of thyrotoxicosis and the underlying PTSD symptoms becomes exceedingly difficult, thereby complicating therapeutic strategies.

Furthermore, individuals with PTSD frequently exhibit chronic dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, a central component of the body's stress response system (Williamson, 2023). This dysregulation often involves heightened amygdala activity and impaired prefrontal cortex function, creating a neurobiological basis for the symptoms of hyperarousal and poor emotional regulation seen in our patient. The presence of excess thyroid hormones in Ms. H's system acts as a potent exacerbating factor, further destabilizing this already compromised HPA axis. This synergistic effect between elevated thyroid hormones and pre-existing HPA axis dysfunction leads to a profound impairment in emotional regulation. Key brain regions involved in emotional processing are particularly vulnerable to this disruption. The amygdala, a critical hub for processing fear and generating emotional responses, experiences heightened activity, leading to an amplified sense of threat and reactivity. Simultaneously, the prefrontal cortex, which is vital for executive functions, inhibitory control, and modulating emotional reactions, may become further impaired in its ability to effectively regulate these heightened emotional states.

The net result is a significant amplification of anxiety levels and an increase in irritability, making it substantially more challenging for Ms. H to manage her emotional state, cope with daily stressors, and engage effectively in therapeutic interventions (Samuels, 2014; Toloza et al., 2020). In essence, in Ms. H's case, thyrotoxicosis is not merely an incidental co-occurrence with PTSD; it functions as a powerful amplifier, escalating the severity, frequency, and pervasiveness of her PTSD symptoms.

Furthermore, dysregulation of the thyroid axis has also been implicated in more severe psychiatric manifestations, including an increased risk of suicidal behavior among individuals with mood disorders, underscoring the critical need to manage endocrine comorbidities in psychiatric patients (Duval et al., 2015). This profound interaction contributes to a more severe and intractable clinical picture, demanding a comprehensive and integrated approach to treatment that addresses both the endocrine and psychological dimensions of her illness. Effective management will likely require careful titration of antithyroid medications alongside trauma-focused psychotherapy to mitigate the intertwined effects of these two complex conditions.

Psychosocial Stress as a Trigger and Perpetuating Factor

Beyond biological factors, psychosocial stress significantly contributes to the persistence of Ms. H's PTSD symptoms. The prolonged and emotionally taxing legal mediation process caused frustration and helplessness, which perpetuated PTSD symptomatology (Smith, 2018). Additionally, prolonged unemployment contributes to psychological distress through loss of social identity, diminished emotional support, and financial stress (Paul & Moser, 2009). The WHO and ILO recognize PTSD as an occupational disease related to psychosocial stress exposure, highlighting the importance of addressing these environmental factors in treatment (Díaz-Tamayo et al., 2024; International Labour Organization, 2016).

Beyond biological factors, the chronic and pervasive nature of psychosocial stress plays a pivotal role in the persistence and exacerbation of Ms. H's PTSD symptoms. The protracted and emotionally draining legal mediation process, characterized by its inherent uncertainties and adversarial nature, significantly contributed to her profound sense of frustration and helplessness. This prolonged exposure to an

unresolved conflict environment is a well-documented perpetuator of PTSD symptomatology, as supported by research from Smith (2018), who highlight how such stressors can maintain a state of hyperarousal and re-experiencing.

Furthermore, Ms. H's prolonged unemployment has introduced a cascade of psychological distress. The loss of a professional role and routine has undeniably led to a diminished sense of social identity, a crucial component of an individual's self-worth and belonging. This is compounded by a reduction in emotional support, as workplace connections often serve as a vital social network. The resulting financial stress, a direct consequence of joblessness, further intensifies her psychological burden, creating a vicious cycle where stress impairs coping mechanisms, and impaired coping exacerbates stress. Paul & Moser (2009) extensively discuss how unemployment contributes to psychological distress through these multifaceted pathways.

The broader implications of these psychosocial stressors are recognized globally, with organizations like the World Health Organization (WHO) and the International Labour Organization (ILO) acknowledging PTSD as an occupational disease directly linked to psychosocial stress exposure. This recognition, underscored by publications such as the International Labour Organization (2016) and research from Díaz-Tamayo et al. (2024), emphasizes the critical importance of addressing these environmental and systemic factors in the holistic treatment of PTSD. A comprehensive therapeutic approach for Ms. H, therefore, must extend beyond individual psychological interventions to include strategies that mitigate the impact of ongoing legal stressors and unemployment, such as legal support, vocational rehabilitation, and enhanced social support networks. Ignoring these external contributors would likely hinder the effectiveness of any solely biologically or psychologically focused treatment.

Therapeutic Strategies Employed

Pharmacological intervention for the patient's condition involved a two-pronged approach. Sertraline, an antidepressant belonging to the Selective Serotonin Reuptake Inhibitor (SSRI) class, was initiated at a dosage of 50 mg daily. This choice was based on its well-established efficacy in mitigating the core symptoms associated with Post-Traumatic Stress Disorder (PTSD), specifically addressing anxiety, depressive episodes, and intrusive thoughts and memories. SSRIs like Sertraline work by increasing serotonin levels in the brain, which can help regulate mood, sleep, and emotional processing, all of which are often dysregulated in individuals with PTSD.

In conjunction with Sertraline, Alprazolam, a benzodiazepine, was prescribed at a cautious daily dose of 1 mg, divided to be taken throughout the day. The primary purpose of Alprazolam was to provide acute relief from severe anxiety attacks and to address sleep disturbances, such as insomnia, which are common and distressing symptoms in PTSD patients. However, due to the potential for dependence and withdrawal symptoms associated with benzodiazepines, close monitoring of the patient's response and adherence to the prescribed dosage was deemed crucial (Stein et al., 2006). The use of benzodiazepines in PTSD is often short-term and carefully managed to avoid long-term reliance.

Beyond pharmacological treatments, a comprehensive and multimodal psychotherapy approach was considered indispensable for holistic patient care. This included Cognitive Behavioral Therapy (CBT), which helps patients identify and challenge maladaptive thought patterns and behaviors stemming from trauma. Exposure therapy, another key component, systematically guides patients through controlled exposure to trauma-related memories or situations to reduce avoidance and desensitize them to triggers. Additionally, ongoing psychosocial support was highlighted as critical. This type of support encompasses various strategies, such as

support groups, family therapy, and educational resources, all aimed at helping the patient process their trauma, develop coping mechanisms, and reintegrate into their social environment. The combination of medication and psychotherapy is generally considered the most effective strategy for addressing the complex and multifaceted symptom domains of PTSD (Zoellner, 2024). Specifically, trauma-focused modalities have shown particular efficacy (Olff, 2022). This combined approach is crucial for promoting long-term recovery and improving overall quality of life, especially in cases with medical comorbidities like thyrotoxicosis (Spoont, 2024).

Emphasis on a Biopsychosocial-Endocrine Approach

The management of patients presenting with Post-Traumatic Stress Disorder (PTSD) alongside intricate comorbidities such as thyrotoxicosis and profound psychosocial stress unequivocally necessitates the adoption of a comprehensive biopsychosocial-endocrine framework. This paradigm shift in clinical approach is not merely a refinement of existing methodologies but a fundamental reorientation towards understanding and addressing the multifaceted underpinnings of such complex presentations. The core tenet of this integrated and holistic strategy is its focus beyond mere symptomatic alleviation, delving instead into the fundamental biological, psychological, and social factors that collectively contribute to the persistence, exacerbation, and often, the chronicity of the disorder.

Effective intervention within this framework demands a meticulously coordinated strategy that transcends traditional disciplinary boundaries, encompassing several interconnected and equally crucial components.

Pharmacotherapy

The judicious application of pharmacotherapy forms a cornerstone of management, specifically targeting the physiological manifestations of both PTSD and its concomitant conditions. For PTSD, medications such as Selective Serotonin Reuptake Inhibitors (SSRIs) and Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs) are often employed to modulate neurotransmitter imbalances associated with anxiety, depression, and hyperarousal. In cases of thyrotoxicosis, antithyroid medications, beta-blockers, or radioactive iodine therapy may be necessary to normalize thyroid function and mitigate symptoms like palpitations, tremors, and anxiety, which can often mimic or exacerbate PTSD symptoms. The careful titration and selection of these medications are paramount to avoid adverse drug interactions and to optimize therapeutic outcomes while minimizing side effects.

Psychotherapy

Alongside pharmacological interventions, psychotherapy is indispensable for addressing the psychological core of PTSD and developing robust coping mechanisms. A variety of evidence-based therapeutic modalities are utilized, each offering unique benefits:

Trauma-Focused Cognitive Behavioral Therapy (TF-CBT): This approach helps patients identify and challenge unhelpful thought patterns and behaviors related to the trauma, gradually exposing them to trauma memories in a safe and controlled environment to facilitate processing.

Eye Movement Desensitization and Reprocessing (EMDR): EMDR involves guided eye movements or other bilateral stimulation while the patient recalls distressing memories, aiming to reprocess traumatic experiences and reduce their emotional impact.

Dialectical Behavior Therapy (DBT): While initially developed for Borderline Personality Disorder, DBT's emphasis on emotional regulation, distress tolerance, interpersonal effectiveness, and mindfulness can be highly

beneficial for individuals with PTSD, particularly those with significant emotional dysregulation or self-harm behaviors.

Exposure Therapy: A specific type of CBT, exposure therapy systematically and gradually exposes individuals to feared situations or memories, helping them to habituate to anxiety and reduce avoidance behaviors.

These psychotherapeutic approaches are essential for processing the trauma, developing adaptive coping strategies, and addressing the profound psychological distress and often pervasive sense of helplessness inherent in PTSD.

Environmental Support

Beyond the clinical setting, significant attention must be dedicated to providing robust environmental support. This encompasses ensuring a stable and safe living situation, which is foundational for recovery, as ongoing exposure to unsafe or unpredictable environments can severely impede progress. Furthermore, fostering a supportive social network is critical. This may involve encouraging engagement with family, friends, support groups, or community resources that can offer emotional, practical, and social assistance. Addressing potential social determinants of health, such as housing insecurity, financial strain, or lack of access to healthy food, also falls under this umbrella, as these factors can profoundly impact mental and physical well-being.

Spiritual Support

Where appropriate and genuinely desired by the patient, the integration of spiritual support can provide an additional, powerful layer of resilience and meaning. This does not necessarily imply adherence to organized religion but can encompass practices like mindfulness, meditation, connection with nature, or engagement with philosophical frameworks that provide a sense of purpose and hope. For many, spirituality offers a framework for processing suffering, finding peace, and fostering a sense of interconnectedness, which can be particularly vital in the aftermath of trauma.

By diligently combining these elements – pharmacotherapy to manage physiological manifestations, psychotherapy to process trauma and build coping skills, robust environmental support to ensure stability and connection, and spiritual support to foster resilience and meaning – clinical outcomes are expected to be optimized. This leads to a substantial and sustainable improvement in the patient's overall quality of life (American Psychiatric Association, 2013; Sanchez et al., 2015). This multi-faceted approach fundamentally acknowledges the intricate and undeniable interconnectedness of mind, body, and environment, moving beyond a reductionist view of illness. It paves the way for more effective, personalized, and sustainable recovery trajectories for individuals confronting such profoundly complex health challenges, ultimately fostering long-term well-being and functional restoration.

Conclusion

Posttraumatic Stress Disorder (PTSD) is a complex psychiatric condition that can be exacerbated by comorbid medical illnesses such as thyrotoxicosis, which interact through neuroendocrine mechanisms to intensify anxiety and hyperarousal symptoms (Koenen, 2023). In the case of Ms. H, persistent PTSD symptoms following a traumatic traffic accident were compounded by ongoing endocrine dysregulation and psychosocial stressors, including a distressing legal process and unemployment. These overlapping factors necessitated a comprehensive and individualized treatment approach.

The therapeutic strategy implemented consisting of selective serotonin reuptake inhibitors (SSRIs), short-term use of benzodiazepines, and trauma-focused psychotherapy resulted in initial improvement in anxiety and emotional

regulation, although functional and social recovery remains ongoing. This case highlights the critical importance of an integrated biopsychosocial-endocrine approach in managing PTSD with comorbid conditions (Rosenberg, 2024). As demonstrated, addressing the psychosocial stressors such as legal issues and unemployment is as vital as managing the neuroendocrine and psychological components for a successful outcome. Long-term success requires not only pharmacological and psychotherapeutic interventions but also attention to medical comorbidities, social support, and spiritual well-being to achieve sustainable recovery and enhance the patient's quality of life. This case underscores the need for multidisciplinary collaboration between psychiatry, endocrinology, and social services for optimal patient outcomes.

As a single case report, the findings are not generalizable to all patients. Future longitudinal studies or larger cohort analyses are warranted to further elucidate the prevalence and optimal management strategies for this complex comorbidity.

Ethics Approval

The patient provided written informed consent for her case to be published as a report. All ethical guidelines were adhered to in conducting this study.

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openness and willingness to share her personal journey. Her experience has provided valuable insight into the complex interaction between psychological trauma, endocrine dysfunction, and psychosocial stressors in the context of posttraumatic stress disorder (PTSD).

Competing Interests

The authors declare no conflicts of interest related to this study. The work was conducted solely with the aim of advancing knowledge and understanding in the field of psychiatry and mental health.

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This study did not receive any external funding. The research was conducted independently, with the aim of contributing to a better understanding of the psychological, endocrine dysfunction, and psychosocial factors involved in posttraumatic stress disorder (PTSD), particularly in patients with comorbid thyrotoxicosis and psychosocial stressors.

Underlying Data

The data supporting the findings of this study are available upon request from the corresponding authors. We are committed to transparency and are happy to share the data for further analysis and research purposes to advance knowledge in this field.