Endocrine Emergency and Urgency Defined

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Abstract

Endocrine emergencies traditionally focus on life-threatening conditions like diabetic ketoacidosis, thyroid storm, adrenal crisis, or severe hypoglycaemia. However, less recognized endocrine conditions also demand immediate attention due to their potential to disrupt the quality of life and result in downstream complications if not timely intervened. This perspective explores unconventional endocrine emergencies such as short stature, pituitary adenomas, infertility, polycystic ovary syndrome, diabetes and hypothyroidism in pregnancy, and low bone mass and osteoporosis. We propose a broader definition of endocrine emergencies, encompassing biomedical, psychological, and social dimensions to ensure person-centered care. Prompt intervention in these endocrine emergencies is essential to mitigate immediate risks, prevent long-term physical and psychological damage, and significantly improve quality of life, highlighting the critical need for swift action in these situations.

Keywords: Endocrine emergency; Endocrine urgency; Psychological distress; Person-centered care; Quality of life.

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Introduction

The word 'emergency', as per the dictionary refers to "a serious unexpected and often dangerous situation requiring immediate action".[1] Emergency is a noun, though it may often be used as an adjective as well. A similar word, 'urgency', means something of importance which requires swift action.[2] These nouns are used with distinct definitions in medicine. A hypertensive emergency, for example, is associated with acute target organ damage, such as pulmonary edema, cardiac ischaemia, neurologic deficits, acute renal failure, aortic dissection, and eclampsia. A hypertensive urgency, on the other hand, has equally elevated blood pressure, without progressive target organ damage.[3]

Emergency in Endocrinology

The word emergency is used in endocrinology as well. An endocrine emergency may be defined as a life threatening condition due to extreme endocrine dysfunction. EndoText lists 37 endocrine emergencies, including hypo- and hyper-function of various glands, as well as dyselectrolytaemia.[4] Their clinical presentations, and approach to treatment, may vary as per age or phase of life.

There are other challenges, however, which may qualify as endocrine emergencies. Though not immediately life-threatening, they have the potential to disturb quality of life, and lead to downstream medical and mental health complications, if not treated in time.

In this opinion piece, we list certain endocrine presentations, traditionally not listed as emergencies, which actually need immediate addressal. We then suggest an operating definition for endocrine emergencies and urgencies. We reiterate that every endocrine dysfunction, irrespective of urgency, must be identified and managed in a timely manner.

Definition

An endocrine emergency is defined as an endocrine condition with an ongoing risk to life, or quality of life, due to its biomedical, psychological or social components. An endocrine urgency may be defined as an endocrine condition with the potential to pose a risk to life, or quality of life, due to its biomedical, psychological or social components.

Growth Disorders

Children and adolescents presenting with short stature, with just 1-2 years of potential left for increase in height must be treated as an urgency. Though there is no life-threatening complication, the limited window of opportunity should prompt immediate evaluation, and appropriate treatment. Any decision to prescribe growth hormone should be based upon shared decision making, and made in a timely manner.[5,6]

Pituitary Adenoma

Pituitary adenomas arise from the cells of the anterior

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Table: List of endocrinological emergencies and urgency .

System	Disease	Possible emergency effects
Growth disorder	Short stature	Patients presenting with short stature with a very short window of opportunity for growth
Pituitary adenoma	Nonfunctional pituitary adenoma (NFPA)	Pituitary apoplexy leading to ophthalmoplegia and severe headache
	Acromegaly	Obstructive sleep apnoea, cardiomyopathy, restrictive lung disease, compressive myelopathy, lower gastrointestinal bleeding
	Cushing's syndrome	Increased cardiovascular risks, deep venous thrombosis, opportunistic infections, fragility fractures, depression and other psychiatric manifestations
Sexual and reproductive health	Precocious puberty	Urgent intervention is needed to maintain the growth potential and psychiatric abnormality
	PCOS	Disrupts psychosocial well-being and fertility prospects
Obstetrics	Diabetes in pregnancy	Features of diabetic embryopathy: Neural tube defects caudal regression syndrome Transposition of great vessels Ventricular septal defect Hypoplastic left heart syndrome Renal agenesis Duodenal atresia
	Hypothyroidism in pregnancy	Impaired psychomotor development in foetus, premature delivery
Bone mineral health	Low bone mass and osteoporosis	Operative procedure in fragility fractures leading to significant blood loss, injuries to vital organs, nerve damage and local site infection, deep vein thrombosis and resultant pulmonary embolism. Additionally prolonged bedridden state leading to poor quality of life.

PCOS-Polycystic Ovary Syndrome

pituitary gland. This accounts for almost 25% of all intracranial tumours.[7] About 60% of the pituitary tumours are secreting, and the rest are nonfunctional pituitary adenomas (NFPA).[8] Visual defects and pituitary apoplexy can be seen with any of the pituitary tumours. NFPA is notorious for causing pituitary apoplexy, leading to severe headaches and ophthalmoplegia.[9] The commonest secretary tumour is prolactinoma, which is associated with infertility and fragility fractures.[10] Growth hormone-secreting tumour, Acromegaly, can cause obstructive sleep apnoea, cardiomyopathy, restrictive lung disease, compressive myelopathy, and lower gastrointestinal bleeding. All these complications are potential life-threatening complications and jeopardize the quality of life to a great extent.[11] Similarly, Cushing's disease, Adreno corticotroph (ACTH) secreting tumour is associated with increased cardiovascular risks, deep venous thrombosis, opportunistic infections, fragility fractures, depression, and other psychiatric manifestations.[12] Interestingly, all these pituitary adenomas can be asymptomatic in the early stages, and a higher degree of suspicion is needed to diagnose such conditions.

Sexual and Reproductive Health

Any endocrine disease causing sexual and or reproductive dysfunction must be treated immediately. This is especially true if the person involved is at risk of psychological or social complications, e.g. depression, marital disharmony, social ostracization, due to sexual dysfunction or subfertility.

In such cases, one may lower the threshold of intervention. This is relevant for conditions such as subclinical hypothyroidism, elevated prolactin levels, or 'grey zone' testosterone deficiency.[13] A distinction may also be made between emergency (history of marital discord, suicidal thoughts/behaviour) and urgency (anxiety/depressive symptoms not meeting diagnostic criteria of anxiety/ depression) for such patients.

The same is true for precocious puberty, delayed puberty and cryptorchidism, where immediate treatment is needed. A similar approach should be followed in rickets, and in gynaecomastia. Untreated rickets may lead to irreparable skeletal damage; gynaecomastia if left unaddressed, can hamper psychological and social health.

Polycystic Ovary Syndrome (PCOS) can significantly disrupt psychosexual well-being and fertility. Beyond its physical symptoms—such as irregular periods, hirsutism, and acne—PCOS often leads to severe psychological distress, causing self-esteem issues, relationship strain, and social isolation. The risk of infertility further exacerbates emotional distress, with many individuals facing anxiety or depression due to difficulty in starting a family.

Obstetric Conditions

Every endocrine dysfunction during pregnancy must be viewed as an emergency [personal opinion]. The duration of pregnancy is short, and every day spent in an environment of suboptimal glycaemic, thyroid, osteocrine, or adrenal function, is an emergency for the unborn foetus. Therefore, immediate resolution is needed.[14]

Endocrine Obesity

Obesity with an endocrine origin such as Cushing's syndrome, hypothalamic dysfunction or genetic disorders like leptin deficiency presents as a silent yet pressing emergency that demands immediate attention. If left undiagnosed, it can lead to multiple comorbidities like diabetes, hypertension and cardiovascular disease and just as importantly and often overlooked–profound psychosocial consequences like stigma, anxiety and depression, all of which can impair mental health and quality of life.

Low Bone Mass and Osteoporosis:

Low bone mass and osteoporosis are a potential endocrinological emergency condition. Osteoporosis leads to micro-architectural deterioration of bone tissue and results in fragility fractures. Fragility fractures are major health concerns and contribute to significant morbidity and mortality. Fragility fractures or low trauma fractures are defined as fractures sustained from forces equivalent to a fall from a standing height or less. This commonly affects vertebrae, proximal femur and distal radius.[15] All fractures are associated with decreased mobility and decreased quality of life. Patients usually undergo major operative procedures for most long bone and vertebral fractures, and those operative procedures can be associated with significant blood loss, injuries to vital organs, nerve damage, and local site infection. Orthopaedic complications include nonunion of the fracture, bony deformities, and premature epiphyseal closure. Life-threatening complications like deep vein thrombosis and resultant pulmonary embolism can follow major orthopaedic operative procedures.

One in 3 women and 1 in 5 men over 50 years of age will experience osteoporotic fractures.[16] Unfortunately, the population's awareness of osteoporosis is quite low, especially in South Asia. A survey indicated that only 10-15% of Indians know the concept of low bone mass and osteoporosis.[17] The availability of DXA machines is quite limited in these parts of the world, adding to the worries.[18]

Person-Centered Definition

The definition of an emergency is person-centred. An individual with a biochemically mild or subclinical endocrine dysfunction, but with clinically significant psychological distress, due to his or her “endocrine label”, must be treated accordingly. The label of emergency, therefore, may be based on the psychological component of disease. Similarly, the social aspect of endocrinopathy, such as potential for ostracization, bullying or discrimination, must also be kept in mind. This is relevant for persons living with type 1 diabetes, obesity, phenotypic abnormalities, and subfertility.

This concept is concordant with the biopsychosocial model of health, and also with the platform of person-centred care. We understand that these definitions are more subjective than objective. They are sufficiently robust, however, to allow a more holistic approach to persons living with endocrine dysfunction, and their individual needs.

Addressal

Priority should be given to persons with endocrine emergency, irrespective of whether the emergency is a biomedical, psychological, or social one. Triage systems should facilitate, rather than hinder, timely consultation and management. Prompt acknowledgement and addressal of complaints and concerns can help improve the quality of life, and overall health status.

Summary

This opinion piece expands and expounds the concept of emergencies in endocrinology. This discussion should stimulate health care planners, as well as endocrinologists to strive to ensure that timely services are offered to persons living with endocrinopathy.

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