

## The intersection of endocrinology and neurology: A neuroendocrine perspective in Bangladesh

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The homeostasis of the human body is vastly regulated by the endocrine and nervous systems. The nervous system, through neurotransmitters and electrical signals, communicates rapidly with various organs, while the endocrine system, via hormones, regulates slower but more prolonged physiological processes. The communication between the two systems is essential for optimal health, and so is the collaboration between the endocrinologists and the neuroscientists for managing a wide range of interrelated health conditions.

The most prevalent endocrine challenge globally is diabetes mellitus (DM). Both hyperglycemic and hypoglycemic emergencies can present with neurological features, including seizure and coma. In a stroke High Dependency Unit (HDU), the majority of patients are observed to have co-existing diabetes. The direct correlation between meticulous glycemic control and improved stroke outcomes underscores the indispensable role of an endocrinologist within a stroke management team. Their expertise in fine-tuning metabolic parameters can profoundly impact patient recovery and long-term prognosis. Studies from Bangladesh have consistently highlighted the significant burden of diabetes among stroke patients and their relations with outcome, emphasizing the need for integrated care in these critical settings.<sup>1,2</sup>

The pituitary gland is located very proximate to the neuroendocrine axis. Its strategic location and multifaceted hormonal control make pituitary tumors a prime example where a multidisciplinary approach is not just advantageous, but lifesaving. Endocrinologists play a pivotal role in the pre-operative preparation of these patients, optimizing hormonal balances to mitigate surgical risks. Post-operatively, their expertise is crucial in managing the acute and long-term hormonal

deficiencies or excesses that can arise, ensuring patient stability and quality of life. Research conducted by the neuroendocrine collaboration has contributed significantly to understanding pituitary tumors in Bangladesh, establishing a valuable baseline for future research and treatment protocols.<sup>3,4</sup> The Bilateral Inferior Petrosal Sinus Sampling (BIPSS) procedure is particularly valuable for diagnosing Cushing's disease in patients who present with normal MRI scans. Endocrinologists of Bangladesh are often doing this procedure in different institutes of Dhaka with the help of intervention neurologists. Neuroradiologists also contribute to the localization and characterization of tumors in the sellar and parasellar regions. Conditions such as adrenal leukodystrophy and cerebral calcifications associated with hypocalcemic disorders further exemplify the critical need for this interdisciplinary work.<sup>5</sup>

Despite these efforts, there remains an undeniable need for greater integration of neuroendocrinology into clinical practice across Bangladesh. Understanding how endocrine imbalances profoundly impact the progression and presentation of neurological diseases could unlock more targeted and effective therapeutic interventions, offering new hope for patients. Interdisciplinary research can lead to innovative approaches to disease prevention, diagnosis, and management.

In conclusion, the intersection of endocrinology and neurology offers significant potential for improving the diagnosis and treatment of numerous diseases that affect the Bangladeshi population. By promoting greater collaboration between specialists and encouraging research in this vital field, we can advance the care of patients and pave the way for groundbreaking studies in neuroendocrinology.

## References

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