

Discussion on Some Experiences in the General Endocrinology Teaching

Peng Jiang Tao Li

Guizhou Medical University, Guiyang, Guizhou, 550025, China

[Abstract] The teaching content of the general endocrinology is the key course for the initial formation of the endocrine system knowledge system, but its abstract complexity is difficult to understand, and the corresponding strategy is adopted. Comprehensive explain, focus on, clear the basic concepts of the endocrine system, fully deepen the understanding of feedback adjustment, clear diagnosis and treatment ideas to enable students to master the general theory on the basis of correct understanding, lay a good foundation for the study of various theories, and at the same time adopt a variety of teaching methods to fully stimulate students' interest and enthusiasm for learning and improve teaching efficiency.

[Keywords] Endocrinology teaching; General endocrinology; Endocrine system diseases

1. Introduction

In the teaching of diseases in various systems of internal medicine, the content of the chapter on endocrine system diseases is relatively uncommon, difficult to understand, and difficult to grasp. In particular, the general theory of endocrinology contains many knowledge points, complex and abstract content, and short teaching time. However, this section is an introductory course that guides students into the endocrine knowledge hall and lays the foundation for future endocrine theory.^[1] So how to let students understand and master the basic knowledge of endocrine system diseases in a limited time is the key to teaching. The author has summarized the following experience in the process of explaining this part of the content many times.

2. Comprehensive Explain and Focus on the Key Points

Although the general theory does not occupy a long period of time, it involves a wide range of knowledge, including the endocrine system and the basic points and principles of the disease. It runs through the entire endocrine system and is a summary of the diagnosis and treatment of endocrine diseases. The teaching time is only 1~2 hours, so according to the syllabus, it is necessary to take into account the various knowledge points, but also to distinguish the primary and secondary, and focus on the explanation.^[2]

The basic concepts of endocrine and the theoretical knowledge that echoes the monographs should be explained in detail. For example, the regulation mechanism of

endocrine system, the principle of diagnosis and treatment of endocrine diseases, etc., and the development of endocrinology, especially the mechanism of action of hormones, has been explained in detail in the previous physiology course, which can be briefly introduced here.

3. Clarify the Basic Concepts

To learn the diseases of the endocrine system, we must first define the basic concepts of the endocrine system, such as what is the endocrine system and its diseases, and what is hormones. Because of the influence of everyday life, students are very vague about these concepts, and it is easy to confuse the concepts of medicine and the meaning of life. For example, the endocrine disorders in the lectures and the endocrine disorders, terminology hormones and proverbial hormones that are often said in life are different, so these concepts are clearly defined to distinguish between professional concepts and popular terms. Only by establishing a clear concept can students truly understand what are the endocrine system and its diseases, and integrate the later knowledge. Of course, the explanation should first be described in a language that is easy to understand.^[3]

4. Deepen the Understanding of the Feedback Regulation of the Endocrine System

The regulation of the endocrine system should focus on the feedback regulation of the endocrine system, because feedback regulation is not only the main regulation of the endocrine system, but also the theoretical basis for the diagnosis of endocrine diseases, especially localization diagnosis. Feedback regulation exists not only between the hypothalamic-pituitary-target glands, but also between the endocrine glands and body fluid metabolites. There are both negative feedback adjustment and positive feedback adjustment, so the explanation is complicated and abstract, which is easy to make students confused. Take a corresponding strategy for this; first let the students thoroughly understand what is the endocrine system axis, the image of the human body in the human body can be displayed on the multimedia with an image of the human body. Graphically draw and introduce the relationship between the classic hypothalamic-pituitary-target gland axis (thyroid, adrenal cortex, and gonad) and endocrine glands-humoral metabolites, allowing students to form a stereoscopic relationship between endocrine glands and metabolites.

Then use the concept of feedback that is commonly used in daily life, such as “feedback of opinions” and “feedback phenomena in electronic thermostats”, are introduced into the medical field, so that students can truly understand the meaning of feedback regulation between endocrine glands,^[4] the positive and negative feedbacks are marked with the representative symbols on the above charts for detailed explanation. Finally, specific hormones are presented for demonstration, making it

easier for students to digest and master. In the post-study monographs and clinical applications, the results of laboratory tests can be judged based on the changes in hormones in the endocrine axis, thereby making the diagnosis of the disease, as shown in Figure 1:

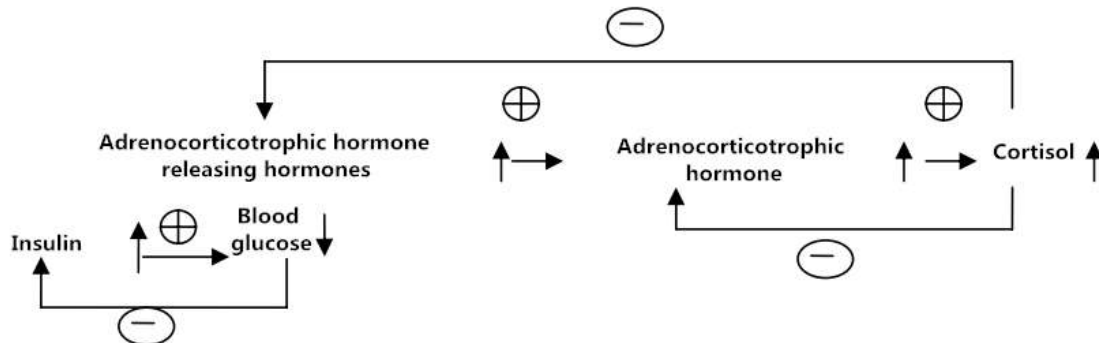


Figure 1. Endocrine system feedback diagram

5. Clear the Thoughts on the Principles of Diagnosis of Endocrine Diseases

The diagnosis of endocrine system diseases is first of all functional diagnosis, then pathological diagnosis, and finally the cause diagnosis. It is very different from the diagnostic procedures and ideas of other systems, such as the diagnosis of neurological diseases. The primary and secondary significance of pathological diagnosis is different from other systemic diseases. The former refers to the lesion site, and the latter refers to the cause of the lesion. Both need to be emphasized to the students and compared for example.

When describing the above three diagnostic principles, the “Case-Based Study” (CBS) method can be used to clear the students’ ideas and provide a theoretical cornerstone for the diagnosis of each theory. CBS refers to the typical case of clinical work in the clinical work, based on a certain teaching purpose, combined with the theoretical knowledge of the disease being taught to provide students with students to think, analyze, diagnose and deal with cases, through independent thinking and mutual discussion, to improve students’ mastery of the theoretical knowledge and a way to improve the ability to analyze and solve problems.^[5] Each of the diagnostic principles explains the corresponding manifestations of the disease, such as the history of the functional diagnosis, physical signs, etc., describing the clinical symptoms of a disease, together with slides to show the typical signs collected in clinical work, such as giant disease and short stature, hyperthyroidism and mucous facial hypothyroidism, etc., form a deep impression, stimulate students’ curiosity and interest in learning, and mobilize their enthusiasm for learning.^[6]

After the three diagnostic principles are independently explained, a real and complete clinical case is analyzed together with the classmates for overall diagnosis.

Combining the three diagnostic principles to enable students to initially establish endocrine clinical diagnosis and treatment thinking, from rational understanding of perceptual knowledge, feel useful and achieve teaching purposes.

6. Use a Variety of Classroom Teaching Methods

6.1 Conduct Flexible Application of Multimedia Technology

At present, multimedia technology has been widely used in teaching, which greatly improves teaching efficiency. Carefully crafted courseware before class, in addition to the text of the outline, you can also fully apply multimedia graphics, animation, video, links and other technologies. The large-scale explanations are transformed into simple graphic forms, and the key content is highlighted by thick dyeing and bold fonts. The key content is clear at a glance. Linking the text and photos that are being explained together, playing dynamically, not isolated, using abstract language to describe the endocrine glands in a cumbersome way. Instead, the general shape and position of each gland are marked in the overall human anatomy simulation diagram, so that the seemingly abstract organs are agile. The entire course is illustrated, and the boring abstract teaching content becomes vivid and visual, attracting students' attention, deepening the impression and making it easier to remember. Fully mobilize students' understanding and initiative, and it is easier to master the teaching content.

6.2 Properly Use the Heuristic Teaching and Combine the Teaching and Questioning

The traditional classroom teaching method is a teacher-centered model. The whole class teacher has been instilling the theoretical knowledge of the course to the students. The students passively accept, often feel boring, sometimes the course is drowsy, the students lack initiative and enthusiasm, and the teaching effect is poor. Through the "heuristic" teaching method, students are the main body, encourage students to ask more questions, mobilize students' creativity and classroom atmosphere, and guide students to follow the teaching content to achieve the unity of teaching and learning, improve teaching efficiency, and at the same time cultivate students' flexibility, expressive ability and clinical thinking ability.

It is also possible to implement a part of the teaching method of Problem-Based Learning (PBL),^[9] designing some questions in advance, and first throwing the corresponding interlocking questions, such as the endocrine axis? What are the classic endocrine axes? What is their adjustment? Encourage students' curiosity and enthusiasm for learning. Concentrate on the lectures with questions. When the content is finished, let the students answer the previous questions and improve the teaching effects.

6.3 List Cases, Conduct Flexible Comparisons and Combine the Theory and Practice

The corresponding real cases can be listed in various aspects of the lecture. As mentioned above, the CSB teaching method can be applied to the “endocrine disease diagnosis principle”. In the “endocrine disease prevention and treatment principle” section, three treatment methods for hyperthyroidism are explained to explain the prevention and treatment principles of hyperthyroidism. Type 1 diabetes, a type of dysfunctional disease, links abstract principles to clinical cases, making it easy for students to understand and easy to remember. Endocrine system diseases are classified into causes such as reduction and hyperactivity according to their functions. The performance can be completely opposite, and there is a sharp contrast. When enumerating symptoms and signs, comparative methods such as hyperthyroidism and hypothyroidism, Cushing’s syndrome, and adrenal insufficiency may be used to deepen the impression, facilitate memory, and improve teaching effectiveness.

References

- [1] Guangliang Shi, Xiaomei Zhang. Some experiences in the teaching of endocrinology theory[J]. Chinese Journal of General Medicine, 2009, 7 (10): 1079-1080. (in Chinese)
- [2] Wei Mu, Xiaoming Zhuang. Several experiences in the teaching of endocrinology[J]. Journal of Capital Medical University (Social Science Supplement), 2008: 236-237. (in Chinese)
- [3] Xiaomiao Li, Li Yuan, Jie Zhou, et al. Experience in the teaching of endocrine and metabolic diseases theory[J]. Modern Medicine and Health, 2006, 22 (24): 3856-3857. (in Chinese)
- [4] Dajun Zhou, De Zhao. Cognitive Mechanism of Semantic Evolution of Full Vocabulary[J]. Journal of Hebei University (Philosophy and Social Sciences), 2008, 33(5): 65-69. (in Chinese)
- [5] Caixia Wang, Ping Mao, Yuping Zhang, et al. Practice and discussion of case teaching method in internal medicine apprenticeship[J]. Practical General Practice, 2007, 5(6): 512-513. (in Chinese)
- [6] Tao Cui, Xiuhong Zhong, Shuyan Yang, et al. Application of case teaching method in undergraduate teaching of digestive medicine[J]. Chinese Journal of Misdiagnosis, 2010, 10(3): 592-593. (in Chinese)
- [7] Hui Guo, Wei He, Dan Pu, et al. Design and production of multimedia endocrinology multimedia courseware[J]. Chinese Medical Education Technology, 2004, 18 (3): 163-164. (in Chinese)
- [8] Mingwei Chen, Qiuling Zhong, Qin Gao, et al. Application and evaluation of multimedia teaching in internal medicine teaching[J]. Northwest Medical Education, 2007, 15(06): 1173-1174. (in Chinese)
- [9] Jianfang Fu, Yanyang Tu. Practice of teaching reform of endocrine system diseases[J]. Practical Preventive Medicine, 2011, 18 (2): 372-374. (in Chinese)