Unifying the immune and neuroendocrine systems

Neuroendocrine–Immune Interactions

The book considers the interface between the nervous, endocrine and immune systems. In keeping with the editor’s agenda, the authors of the various chapters have interpreted this interface as something physical, as when signaling agents from one system react with the receptors in another system and modulate its behavior. However, an interface can also be conceptualized in functional terms. Nikolai Petrovsky discussed this idea in a recent article in which he described the relationship between the body’s systems as an integral entity. Unfortunately, he did not discuss this idea in his chapter, possibly because, as the editor suggests, a strictly reductionist approach is the fashion of the day. Whatever the merits of reductionism, and there are many, it masks the fact that only a global approach affords the possibility of predicting behavior. For example, infection, stress and disease are emergent manifestations that cannot be located solely in terms of the component systems of the body. In such cases, we might aspire to know something of the underlying dynamic law so that predictions might be possible, at least on a statistical basis, even though the linear concept of mechanism might be obscured. A chapter devoted to this approach would have added balance to the book.

The sequence of topics is a bit puzzling. Chapters on nitric oxide and heme oxygenase appear at the end of the book, and the excellent chapter by Catherine Rivier relating NO and CO appears early in the book. Otherwise, it is well organized and provides both a good starting point for immunologists or neuroscientists and a concise update of several topics of interest to investigators in this field. Hopefully, the book will lessen the compartmentalization in the relevant disciplines identified by Besedovsky and del Rey in their chapter, and remind investigators that the body’s systems are constantly communicating and affecting each other’s functions.

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