Time-dependent structure and control of arterial blood pressure


This 783rd volume of the Annals of the New York Academy of Sciences represents a compendium of talks from a recent international symposium on the chronobiology of arterial blood pressure. What exactly is the chronobiology of blood pressure? This is the study of variations in blood pressure that occur within individuals over time. The faculty of the symposium represent an internationally diverse group of leaders from among this field of research. Chapters are well written and extremely well referenced, providing a useful resource for those interested in exploring further. The text will be of general interest to clinicians who manage patients with chronic disorders of blood pressure regulation (both hypertension and hypotension) but of greater interest to researchers in this field. As with many books of this type, the progression of topics from chapter to chapter is a bit bumpy, but the editors have grouped related papers in five sections, with a final collection of summaries from poster presentations. Considered first are normal mechanisms regulating the rhythms of blood pressure, including neural, renal, vascular, and endocrine influences. The contribution of various diseases and pharmacologic factors are then addressed with special emphasis on the rhythms of pressure in hypertension. Subsequent chapters address important pitfalls in monitoring blood pressure, which are particularly relevant to those of us who treat and study hypertension or perform clinical trials in which blood pressure is a study endpoint. Useful information is presented on the application of ambulatory blood pressure monitoring, and guidelines are given for defining hypertension and its reduction in clinical trials. A better understanding of normal and pathologic rhythms of blood pressure should help to reduce the variability in pressure measurements unrelated to out interventions. While not for everyone, the book has its niche and should be a reasonable value for those who share it.

Randolph L. Geary, MD
Bowman Gray Medical School
Winston-Salem, N.C.

Medicine meets virtual reality: Health care in the information age

Suzanne Weghorst, Hans Sieburg, Karen Morgan; Amsterdam; 1996; IOS Press; 734 pages; $98.

Medicine Meets Virtual Reality, edited by Weghorst, Sieburg, and Morgan, is a “proceedings manuscript”—a collection of 79 papers given at the fourth meeting on this subject in San Diego in January 1996. Because of that genesis, the expected variability in quality and, even more, heterogeneity of content is prominent. That said, the book is recommended for its important link to the arcane world of computer-based simulation for the reader who wants to look to the future. Actually, the state of this art is getting technically advanced enough that practical use of virtual reality is becoming a present reality.

Some examples relevant to vascular surgical interest illustrate the point. Chapter 2 by Harreld et al. is titled “The virtual aneurysm: Virtual reality in endovascular therapy.” This paper describes an attempt to simulate an arterial aneurysm by use of image processing and flow simulation of hemodynamic factors measured in vivo by ultrasound and angiography. The result seems crude for not looking “real” but is sophisticated in the modeling methods used. If one wonders, “how do they do this stuff?”, here is an introduction. Another good example is David Hon’s report on “Medical reality and virtual reality,” illustrating a computerized model for gastrointestinal endoscopy. This summary of why and how virtual reality simulation can be used for educational purposes may be easily transposed to the needs of vascular surgical training programs.

The use of internet resources for medical information sharing is, like the present state of the WWW, generally full of clutter. However, visions of well-founded utility are revealed in this book and sustain the idea that when the novelty wears off, some genuine value may remain. A chapter by Gupta et al. on how to get clinicians on the web illustrates the activity of plastic surgeons as a model for others.

The chapter on “Patient-specific anatomic models” by Cameron and Mayo Clinic colleagues is an excellent and stimulating summary of innovative methods approaching interactive capabilities that allow dynamic preoperative planning. They conclude by stating “. . . we are using the existing algorithm to successfully produce patient-specific anatomic models to be used for surgery rehearsal and planning.” How useful might it be to have the capability to perform “dry run” surgery, specific to an individual patient’s anatomy, before operating on a complex thoracoabdominal aneurysm or teaching a resident? Much of this is already familiar in plastic surgery and specialized orthopedic and neurological surgery, and most of the content of this collection of papers focuses on these disciplines. It is easy, however, to imagine a vascular surgery context.

As with all rapidly emerging fields, print medium reports lag behind the leading edge, and some of the work included here has already been superseded by the authors themselves or others. No matter, because the book has between its two covers a good current summary in one place to “catch up” with what’s going on in this dynamic area. The price of $98 seems a bit steep considering illustrations are few and of poor quality. Perhaps this reflects the publisher’s anticipation of a limited universe for its sale.

This book’s subject matter means that it will not interest everyone, but it will enlarge greatly the perspective of academic vascular surgeons whose daily work does not involve them in the modeling techniques described.

The conduct of endovascular surgery is fundamentally different from conventional open procedures. Information about the anatomy to be treated derives from indirect