

Desiring the Painless Urodynamic Study

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Advances in technology and gains in modern medicine are intertwined. Development of medicine through comprehensive application of advanced technology is a principal condition for their mutual progress. However, they also serve as an important limiting factor to each other. The clearly established need for improved medicine cannot be satisfied by the limitation in technology. For example, current urodynamic study is limited by catheterization for measuring bladder-related pressures [1], although urologists consider it indispensable. If a future technique to measure pressures with advanced images alone were available without direct connection to the bladder space, the urodynamic study would be considerably more successful as a diagnostic procedure for voiding dysfunction. However, since such a technique is lacking now, an implantable medical device is needed for this study as an intermediate technique between present and future techniques. Research in this area has already begun [2]; however, more sophistication is needed in the future.

Biomedical engineering can be defined as the comprehensive and advanced application of engineering principles and design

concepts based on the clinician's need for healthcare improvement. The medical doctor is a practical user, and can more accurately predict the outcomes of using the newly developed medical device for the human body. However, the doctor's need should be realistic given the abilities of the current technology. Therefore, the exact situation for using a specific technique should be determined. In this issue of *International Neurology Journal*, Joung [3] explains the status of development of implantable medical devices from the viewpoint of an engineer.

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