Stanley J. Dudrick, MD

A Paradigm Shift

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Were Thomas S. Kuhn to rewrite his famous treatise, The Structure of Scientific Revolutions, he might have referred to Stanley J. Dudrick’s seminal works on parenteral nutrition as a classic paradigm shift, highlighting the intense early criticism of this work as evidence of the inherent conflict created whenever prevailing schools of thought are faced with new modes of thinking. Dr Dudrick (Figure 1) developed a predilection for gravitating toward uncomfortable, if not unpopular, positions, and often pointed out the elephants in the room whenever the opportunity arose. An archetype for the triple-threat surgeon, he epitomizes what can be done in one lifetime and still have ample time to enjoy the love, respect, and friendship of the individuals whose lives have been enriched in the process.

Born in Nanticoke, Pennsylvania, Dr Dudrick graduated with honors from Franklin and Marshall College, where he was class president and was awarded the Williamson Medal as the outstanding member of the graduating class. He was also president of his graduating class at The University of Pennsylvania School of Medicine and Intern of the Year at the Hospital of the University of Pennsylvania where he completed his surgical residency under Jonathan E. Rhoads, MD.

Dr Dudrick first conceived of the idea of concentrating intravenous nutrients and delivering them directly into the central venous circulation while a surgical resident at the University of Pennsylvania Hospital. He demonstrated the validity of his idea by successfully growing beagle puppies, one named Stinky (Figure 2), from 6 weeks of age to adulthood, giving nutrients entirely by vein. Through a series of elegant, controlled, and laborious experiments, he refined the ability to alter electrolytes, protein to calorie ratios, and the content of vitamins and minerals, resulting in normal growth and development in a variety of animal models. In 1967, an infant born with almost complete small bowel atresia provided the opportunity for Dr Dudrick and his team to apply the technique on a human with the hope that the gut would regain absorptive function. The child’s growth and development proceeded for a year as if normal gastrointestinal function were present. This is the first example of a child growing when all nutrition was supplied intravenously. It marked a turning point in clinical medicine.

A number of other developments resulted from these initial efforts. The Dudrick team demonstrated the technique of safe, long-term central venous catheterization as well as the use of total parenteral nutrition, using essential amino acids in renal failure. They showed that small bowel fistulas could close spontaneously with restoration of an appropriate nutritional state. They identified the value of total parenteral nutrition in restoring immune competence in the setting of severe protein-calorie malnutrition, particularly in patients with malignant neoplasms, thereby dispelling the myth that such an approach would feed the tumor, not the patient.

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For his contribution to science, education, and patient care, Dr Dudrick has been recognized universally. He has been a James IV Surgical Traveler and received the Joseph B. Goldberger Award in Clinical Nutrition, the Brookdale Award in Medicine from the American Medical Association, and the Flance/Karl Award from the American Surgical Association, along with honorary fellowships from prominent surgical societies on every continent except Africa and Antarctica. In 2005, he was awarded the prestigious Jacobson Innovation Award from the American College of Surgeons.

It is not uncommon for surgeons of various vintages to recall that it was Dr Dudrick who gave them their oral examinations in surgery as a member of the American Board of Surgery, for which he served for 26 years. He also served the American College of Surgeons as a Governor, as a member of the Executive Committee of the Preoperative and Postoperative Care Committee, Committee of Motion Pictures, and Subcommittee for the Manual of Surgical Nutrition, Co-Chair of Surgical Education and Self-Assessment Program from 1993 to 1995, and as Chair of the Editorial Subcommittee for the Manual of Preoperative and Postoperative Care, Third Edition.

As Founding Chairman of the Department of Surgery at the University of Texas Medical School at Houston and as Chair of the departments of surgery at 4 institutions, Dr Dudrick has been rewarded with the satisfaction of having trained and mentored hundreds of surgeons and scientists, many of whom have also achieved recognition and prominence on their own merit throughout the world. He has served as a member of the Board of Trustees of Franklin and Marshall College since 1985 and as its Vice Chair for 8 years. A Stanley J. Dudrick Research Scholar Award is given annually by the American Society for Parenteral and Enteral Nutrition, one of the many organizations for which he has served as president, and a Stanley J. Dudrick Society was formed in his honor by the graduating residents from the University of Texas Medical School at Houston. The Stanley J. Dudrick Department of Surgery was recently dedicated at Saint Mary’s Hospital in Waterbury, Connecticut, where he served as Program Director and Chairman for many years. At Yale, he has served as Professor of Surgery since 1995.

Today, medical science takes for granted the technique of parenteral nutrition as part of the routine armamentarium in the treatment of a wide variety of difficult medical conditions in both adult and pediatric patients. Many institutions have dedicated nutritional support teams, and an entire industry has arisen to support its use. All of this springs from the dedicated work of an individual who, as an inquisitive surgical resident, used his intellect, abilities, and resilience to change the course of many previously debilitating and often fatal medical conditions. These things he did with humility, compassion, and determination, all the while fostering excellence and unyielding loyalty among those fortunate
enough to enjoy his extraordinary wit, wisdom, and friendship.

On March 28, 2009, friends and colleagues gathered in New Haven to honor Stanley J. Dudrick for a remarkable and highly productive career. A Symposium at Yale University on nutrition was followed by a festive dinner at which a veritable who’s who in American surgery reminisced and reflected on his pivotal role in their lives as well as his effect on the history of medicine and surgical education. The articles that follow give testament to the tremendous energy and dedication he has devoted to mentoring and guiding generations of surgical scientists and educators.

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