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## Laudatio: Professor Paul E. Teschan

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The organizers of the International Symposium on Home Hemodialysis established a Special Award for Lifetime Achievements in Hemodialysis. Professor Paul E. Teschan was the recipient of this award, which was presented during the 5th International Symposium on Home Hemodialysis in Charlotte, North Carolina, February 28, 1999. Following the presentation of the award (Fig. 1), Professor Teschan gave the inaugural address of the Symposium: “Evolution of Daily Hemodialysis in Acute Renal Failure—From the Korean War to the Present.”

Dr. Paul Teschan was born in Milwaukee, Wisconsin, on December 15, 1923. He graduated in 1942 as his high school valedictorian (Fig. 2). Because of World War II, he studied on the “accelerated schedule” at the University of Minnesota Medical School and graduated in 1948; in the same year he received his Master of Science degree in physiology. He joined the Army Medical Service in 1948, and as an active-duty medical officer Dr. Teschan completed his internship at the University of Illinois Research and Educational Hospital, Chicago, in 1949, and a one-year residency in internal medicine at the Presbyterian Hospital of Chicago in 1950.

The Korean War prompted the Army Research and Development Command to study surgical and medical issues in wounded casualties, including renal failure. A fellowship was arranged in Peter Bent Brigham Hospital in Boston, Massachusetts, for the necessary training of

medical officers in acute renal failure and dialysis. Dr. Teschan was one of these officers and became acquainted with the Kolff-Brigham rotating-drum dialyzer in 1950. Immediately after residency Dr. Teschan worked as a Ward Officer in the Metabolic Ward of the Department of Hepatic and Metabolic Diseases at the Walter Reed Army Institute of Research in Washington, D.C.

In 1952, at the height of the Korean War, he became the Chief of the Renal Center of the U.S. Army Surgical Research Team, at the 11th Evacuation Hospital, 8th U.S. Army, in Korea. The mortality rate in acute renal failure in military casualties was 80% – 90%, similar to the mortality rate during World War II. The Renal Center acquired the Kolff-Brigham rotating-drum dialyzer in April 1952 (Fig. 3). The use of this dialyzer decreased mortality to 53% [1–3].

The Kolff-Brigham dialyzer was difficult to operate and did not permit hydrostatic ultrafiltration; in addition, dialysis itself was not without risks, including hypertension and hypotension, bleeding from wounds, and fever. Because of these risks, dialysis was not recommended until patients developed life-threatening hyperkalemia, severe metabolic



FIGURE 1 Dr. Teschan receives a Special Award for Lifetime Achievements in Hemodialysis from Dr. Twardowski.



FIGURE 2 A high school photograph of Dr. Teschan, at age 19, as the valedictorian of the class of 1942.



FIGURE 3 Dr. Teschan operating the Kolff-Brigham rotating-drum dialyzer in the Renal Center of the U.S. Army near Wonju, Korea, in 1952.

acidosis, clinical “uremia,” or severe azotemia (serum non-protein nitrogen over 200 mg/dL). While treating military casualties with renal failure, Dr. Teschan noted that metabolic derangements could develop so rapidly in these patients that the patients could die before dialysis was started (Fig. 4).

After the war in Korea ended with an armistice on July 27, 1953, Dr. Teschan continued residency in internal medicine at Barnes Hospital, St. Louis, Missouri, from 1953 to 1954. In 1954 he became Chief of the Renal Branch, at the U.S. Army Surgical Research Unit of Brooke Army Medical Center in Fort Sam Houston, San Antonio, Texas, and served in this position until 1960. While working in Fort Sam Houston, the Renal Branch acquired the McNeill-Collins dialyzer. This dialyzer had substantial advantages over the Kolff-Brigham rotating-drum dialyzer: hydrostatic ultrafiltration was possible, only 250 mL of blood was required to fill dialyzer and lines,



FIGURE 4 Dr. Teschan en route to the mobile army surgical hospital (MASH) for teaching sessions on the reasons for prompt evacuation to the renal center of patients with oliguric posttraumatic acute renal failure (1952–53).

and no pump was necessary because of low internal resistance. Dialysis was less risky, and Dr. Teschan contemplated a “prophylactic dialysis,” a method that would prevent occurrence of uremic symptoms, life-threatening hyperkalemia, and uremia instead of treating them.

The introduction of “prophylactic dialysis” was a substantial departure from the established practice at that time. With the support of the Surgeon General and after a year’s preparation by the participants, Dr. Teschan convened a closed meeting of everyone he knew in the world who had extensive, published clinical or related experience with acute renal failure at that time. The participants were as follows: Paul Teschan, George Schreiner, Hadley Conn, Garland Herndon, Paul Doolan, Bill Bluemle, Graham Bull (Belfast, Northern Ireland), Willem Kolff, John Kiley, Arthur Mason, John Merrill, Gabriel Richet (Paris), and Milton Rubini (Fig. 5). They all shared and confirmed their unsatisfactory experiences with their patients’ morbidity and mortality. These participants were responsible for the “paradigm shift” to develop “prophylactic daily dialysis.” Shortly thereafter, the first four patients with acute renal failure due to various surgical and traumatic causes recovered with daily prophylactic dialysis [4]. Four more cases, making a total of eight cases, were presented in the same year at the meeting of the American Society of Artificial Internal Organs [5]. Prophylactic daily hemodialysis in acute renal failure was born.

In 1961 Dr. Teschan moved to Washington, D.C., to assume various positions at the Walter Reed Army Institute of Research. From 1966 to 1969 he was Chief of the Department of Metabolism, Director of the Division of Medicine. Simultaneously he served as a Consultant in Renal Diseases to the Surgeon General, Department of the Army. In



FIGURE 5 The Study Group on Acute Renal Failure, at the U.S. Army Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas, October 13–16, 1957. Standing from left: Paul Teschan, John Kiley, Arthur Mason, John Merrill, Gabriel Richet (Paris), and Milton Rubini. Sitting from left: George Schreiner, Hadley Conn, Garland Herndon, Paul Doolan, Bill Bluemle, Graham Bull (Belfast, Northern Ireland), and Willem Kolff.

1963 he spent a few months as a Visiting Professor at the University of Puebla Medical School, Puebla, Mexico (Fig. 6). From 1963 to 1964 he served in the rank of lieutenant colonel as a Chief of the U.S. Army Medical Research Team (WRAIR) in Vietnam (Fig. 7). It was during his service in Vietnam that Dr. Teschan rendered medical care to Field Marshal Sarit Thanarat, Prime Minister of Thailand. For this service he was decorated with the Most Noble Order of the Crown of Thailand in 1965. After returning from Vietnam, he was promoted to full colonel and completed his army duty at Walter Reed Army Institute of Research from 1964 to 1969.

In 1969 Dr. Teschan retired from the military and moved to the Vanderbilt University School of Medicine in Nashville, Tennessee. His academic titles included Associate Professor



FIGURE 6 Dr. Teschan lecturing on renal and electrolyte disorders at the Autonomous University of Puebla, Mexico, by invitation as a Visiting Specialist Abroad.



FIGURE 7 Dedication by General William Westmoreland (center) of the laboratory and headquarters, U.S. Army Medical Research Team-Vietnam. Dr. Teschan (third from right) served as Commanding Officer.

of Urology and Biomedical Engineering and Professor of Medicine. Between 1977 and 1989 he also served as the Co-Medical Director of the Dialysis Clinics, Inc., Nashville. From 1993 he has been Professor Emeritus of Medicine at the Vanderbilt University, Nashville.

Throughout his career Dr. Teschan has championed patients' interests. His outstanding service in military medicine brought him recognition from his superiors and peers. In 1967 he received the Prefix A to Military Occupational Specialty for Outstanding Qualification in the Field of Internal Medicine.

More than 170 published original papers, editorials, monographs, and chapters, primarily related to dialysis and general nephrology, are the result of his clinical research. His main areas of interest have been related to pathogenesis and prevention of acute renal failure, including prophylactic dialysis, causes of uremia, nutrition in chronic renal failure, and interventions in progressive renal failure. Excellent results of prophylactic, daily dialysis in acute renal failure encouraged him to explore the possibility of using daily dialysis in chronic renal failure as well. He convened a group of experts at the Meeting of the American Society for Artificial Internal Organs in 1980. The participants concluded that daily dialysis was not routinely indicated in acute or chronic renal failure, but in special circumstances it would be beneficial. For chronic daily dialysis the home setting was postulated with the indefinite reuse of components [6].

Now, after retirement, Dr. Teschan enjoys serving the Episcopal Church in the Diocese of Tennessee as a member of the Administrative Support Team (think tank) for the Bishop of Tennessee and helping to organize a Center for Ministry in Small Churches, sponsored by eight dioceses contiguous to the Diocese of Tennessee and the School of Theology of the University of the South (Fig. 8).



FIGURE 8 The Administrative Support Team (think tank) for the Bishop of Tennessee of the Episcopal Church in the diocese of Tennessee. Left to right: Dr. Philip Davidson, The Rt. Rev. Bertram Nelson Herlong, and Dr. Paul Teschan (1996).

## References

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- 1 Teschan PE. Hemodialysis in military casualties. *Trans Am Soc Artif Intern Organs*. 1: 52–4. 1955.
- 2 Teschan PE. Post RS. Smith LH. Abernathy RS. Davis JH. Gray DM. Howard JM. Johnson KE. Klopp E. Mundy RL. O'Meara P. Rush BF. Post-traumatic renal insufficiency in military casualties. I. Clinical characteristics. *Am J Med*. 18: 172–86. 1955.
- 3 Smith LH. Post RS. Teschan PE. Abernathy RS. Davis JH. Gray DM. Howard JM. Johnson KE. Klopp E. Mundy RL. O'Meara P. Rush BF. Post-traumatic renal insufficiency in military casualties. II. Management, use of an artificial kidney, prognosis. *Am J Med*. 18: 187–8. 1955.
- 4 Teschan PE. O'Brien TF. Baxter CR. Prophylactic daily hemodialysis in the treatment of acute renal failure. *Clin Res*. 7: 280. 1959.
- 5 O'Brien TF. Baxter CR. Teschan PE. Prophylactic daily hemodialysis. *Trans Am Soc Artif Intern Organs*. 5: 77–80. 1959.
- 6 Teschan PE. Ahmad S. Hull AR. Nolph KD. Shapiro FI. Daily dialysis—applications and problems. *Trans Am Soc Artif Intern Organs*. 26: 600–2. 1980.

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