

## BIOGRAPHY ΒΙΟΓΡΑΦΙΑ

### Hippocrates Yatzidis A great yet humble Greek Professor to remember

Professor Hippocrates Yatzidis was the “father of nephrology” in Greece and one of the most pioneering nephrologists worldwide. He was born on 22 September 1923 in Athens and died on 27 August 2013. Passionate about his science, he devoted himself to creating high-profile Nephrology Units and to nephrological research. He was the director of many research units in Greece and other countries and he even took over the management of the Geneva Medical Centre for a while. He always encouraged continuous training for himself and his colleagues so as to keep up with advances and provide the best possible and up-to-date treatment to patients. Yatzidis’ charcoal artificial kidney is perhaps his crowning achievement and a major breakthrough in Nephrology worldwide. He published many scientific papers, most of them in international journals, and with many citations. In the early 70s, he co-founded the Nephrology Department of the “Areteion” Hospital of Athens to support patients in need of renal care. In the last period of his life, he continued his research at the experimental surgery laboratory of the Athens Medical School. He was known for his kindness and generosity to his associates. The present article aims to present his life and work achievements.



Figure 1. Professor Hippocrates Yatzidis.

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2020, 37(Συμπλ 2):38–41

P.E. Andronikidi,<sup>1</sup>  
G. Psimenos,<sup>2</sup>  
T. Apostolou<sup>1</sup>

<sup>1</sup>“Antonios G. Billis” Nephrology  
Department, “Evangelismos” General  
Hospital, Athens

<sup>2</sup>Dialysis Unit, “Evgenidio” Hospital,  
National and Kapodistrian University of  
Athens, Medical School, Athens, Greece

Ιπποκράτης Γιατζίδης:  
Ένας σπουδαίος αλλά παράλληλα  
ταπεινός Έλληνας καθηγητής  
που αξίζει να θυμόμαστε

Περίληψη στο τέλος του άρθρου

#### Key words

Carbon artificial kidney  
Professor Yatzidis

#### 1. INTRODUCTION

Yatzidis’ research work, conducted entirely in Greece, was recognised internationally for its originality and contribution to the establishment of Nephrology as a specialty. The high quality of his research is demonstrated by the publication of his work in international journals such as “Nature”, “Clinical Nephrology”, “Experientia”, “JAMA”, the “British Medical Journal”, “Biomedicine”, “Nephron”, “Kidney International”, “Lancet”, the “New England Journal of Medicine”, “Peritoneal Dialysis International”, “Clinical Chemistry” and others. These have oft been cited by foreign researchers and Yatzidis had received dozens of official invitations from universities and research centres abroad as an invited speaker. He was included in the publication “Two thousand men of achievement” and “Who’s who in science from antiquity to the present” as the Founder of Nephrology in Greece and as an Inventor of the Activated Carbon Artificial Kidney, known as “Yatzidis Kidney”.

#### 2. EARLY LIFE

Professor Hippocrates Yatzidis was born in Athens on 22

September 1923. He completed his secondary education at the Lycee Leonin French Senior High School in Athens. He started his studies at the Medical School of Athens in 1943 but, due to the Civil War, stopped in 1947 to do his military service. After three years in the army, he continued his studies in 1950. He graduated in October 1950 and was immediately hired as an external assistant to specialise in the Second Internal Medicine Clinic of the University “Hippokrateio” Hospital of Athens. After two months, he was appointed internal assistant, a position he held until the end of 1954. At the end of his term, he was awarded a doctorate by the University of Athens, having been trained in Internal Medicine and Cardiology.<sup>1</sup>

Throughout his life, he dealt with many scientific and research issues. His first work, titled “Determination of total blood, plasma and cellular volume with polyvinylpyrrolidone”, was presented as his own technique in May 1953<sup>2</sup> at the Athens Medical Society and its applications constituted the subject of his doctoral dissertation. During 1952–1954, Yatzidis collaborated with Arkagathos Goutas, Hippocrates Chevrenis, George Michaelides, Phaedonas Fessas, Antigoni Koidakis, Frixos Costaesa to co-author 11 works on cardiology issues, anti-coagulant treatment, systemic lupus erythematosus, radioisotopes and anaemia after gastrectomy.

Between 1955 and 1959, Yatzidis completed his post-graduate studies in France with a scholarship from the French Government. He worked as a paid Resident Médecin des Hopitaux de Paris at the Metabolic Disease Clinic, at the Bernard René Research Centre CN School of Medicine and the Department of Clinical Chemistry of the University of Paris, under Professor Jean Hamburger. During this time, he focused his efforts on acquiring clinical and laboratory experience and less on writing articles. In 1956, he wrote the first article on nephrology with Professor E. Richet, entitled “Coagulation disorders and changes in plasma and urine coagulation factors in nephrotic syndrome”. This internationally original work interprets certain points of the mechanism of the various forms of proteinuria and was published in 1957 in the journal *Revue Francaise des Etudes Cliniques et Biologiques*.<sup>3</sup>

In 1959, Hippocrates Yatzidis returned to Greece and served as senior registrar and then as lecturer at the Second Internal Medicine Clinic of the University of Athens. Arkagathos Goutas, professor and director of the clinic, nurtured unlimited appreciation and admiration for his new associate and thus provided him with as many opportunities as he could to develop the clinic’s kidney activity. As a result, Yatzidis, urged by director Arkagathos Goutas, succeeded

in attracting a team of young and enthusiastic doctors dedicated to him and to the new specialty of Nephrology at a time when such units were rare even abroad.

The most important members of this team were Dimi- trios Oreopoulos, Nikos Rizos, Christos Velentzas, Alexandros Simvoulidis, Dora Mayopoulou-Simvoulidou, Diogenis Triantaphyllidis, Charalambos Gavras, Pavlos Toutouzas, Nikos Tsaparas, Amalia Stavroulakis (later Tsapara), Sonia Voudiklari, Aristomenis Fertakis, Georgios Psimenos, Andreas Kravaritis, Manta Garidis, Antonis Tzamaloukas and others. The team of these doctors had great excitement and zest for hard work. He required his associates to work hard, but he was the most devoted and hard worker of all. Their dream was to study abroad for a specialty in nephrology and then return to apply their new knowledge in Greece in collaboration with Yatzidis. This is how the first foundations of modern nephrology were built in Greece.

### 3. FIRST PUBLICATIONS

In 1958, the first publication on the artificial kidney and its contribution to the treatment of acute anuria was based on Yatzidis’ experience with 200 haemodialysis sessions in Paris. Soon he introduced the application of artificial kidney for acute kidney failure in Greece. The filters were handmade and the vascular access to connect the patient to the artificial kidney was initially made with glass tubes. Very soon, just a year after Scribner’s introduction of Teflon shunts in the US, Yatzidis’ partners had learned to make Teflon shunts on their own and to surgically implant them intra-venously and intra-arterially into the patient’s wrist.<sup>4</sup> The Artificial Kidney Department at “Hippokrateio” Hospital began operating intensively in 1958 and patients with acute renal failure were referred to it from all over Greece.

Yatzidis paved the way for renal biopsies and, in 1960, he presented his observations on 30 open kidney biopsies via puncture to the Athens Medical Society. Two years later, he presented the causal classification of 70 cases of nephrotic syndrome based on physical examination and pathology findings. At the same time, he described the necrotising findings of a patient with hypertension from obstruction of the left renal artery. In 1963, Yatzidis and his colleagues described for the first time in Greece a case of a patient with unilateral fibrillation and a case of a patient with infarction and lupus erythematosus.<sup>5</sup>

One of the most important contributions of Yatzidis and his team in nephrology was the use of activated carbon columns as a method of dialysis in patients with renal

insufficiency and in cases of barbiturate poisoning (Yatzidis Artificial Kidney).<sup>6</sup> With these works, Yatzidis became well known and internationally recognised as a leading kidney specialist in Greece and an important member of the kidney community.

#### 4. PARTNERSHIPS AND LATER CAREER

Yatzidis' plan for a dynamic future Nephrology Unit was to send his associates abroad, each one to deal with a field of nephrology and implement it upon returning to Greece. Thus, A. Counselidis and D. Mayopoulou went to Paris to study clinical and laboratory immunology, D. Oreopoulos to Belfast to study calcium and kidney diseases, D. Triantafyllidis to London to study hypertension, G. Roasted to Oklahoma to study the organisation and operation of the Artificial Kidney Unit for patients on dialysis, percutaneous kidney biopsy and its histopathology, N. Tsaparas and A. Stavroulakis to Texas to study experimental nephrology and electrolytes.

During 1967–1972, Yatzidis continued his research. Thus, in 1968, he collaborated with H. Gavras to publish their work on renal hypertension. This work was a great start to Gavras' subsequent brilliant career in the field of hypertension. In 1968, Yatzidis was one of the first to use arteriovenous communication for chronic dialysis, and in 1969 he published the first results in *"Medicine"* and the *"New England Journal of Medicine"*.<sup>7</sup>

Yatzidis stayed at the "Hippokrateio" Hospital for a while under Professor Danopoulos, but eventually went into private practice and worked in an artificial kidney unit at the Athens General Clinic. Fortunately, in 1972 he cooperated with Professor Tundas, Professor of Surgery at the "Aretaio" Hospital, who wanted him as an associate to develop a kidney transplant program. At the "Aretaio" Hospital, Yatzidis organised the Nephrology Centre of the University of Athens, with a Nephrology Clinic and an Exemplary Artificial Kidney Unit.

In 1972, he published his experience of the role of heparin in the treatment of uremic pruritus in *"JAMA"*.<sup>8</sup> In 1975, he announced at the First Panhellenic Congress of the Athens Medical Society the very important observation on endogenous hypervitamin A in chronic renal failure.<sup>9</sup> In 1972, he expanded his activity to the study of new locust bean gum and published the first relevant work in *"Kidney International"*.<sup>10</sup> In 1981, he first described the role of biotin<sup>11</sup> in the pathogenesis and treatment of uremic neuropathy and, at the same time, he began his study on cyanide and thiocyanates in renal failure.<sup>12</sup> This study led to the discovery

of the role of sodium thiosulphate in the pathogenesis and treatment of arthritic and vascular calcifications in uremic patients and nephrolithiasis.<sup>13</sup> In 1984, he drew the attention of nephrologists to the role of peroxaemia in uremic dialysis patients. In 1991, he described the use of glycine dipeptide (glycylglycine) to produce new solutions for chronic peritoneal dialysis as well as dialysis solutions. The range of Yatzidis' interests is clearly outlined in one of his latest papers on the plasma protein-free cholesterol bond and its role in atheromatosis.

Yatzidis had a particular love for biochemistry. When he was at "Hippokrateio" Hospital, he set up a separate biochemical laboratory in the nephrology clinic for precision biochemical tests before the time of automated analyzers. For the needs of his research work, he improved many laboratory methods and introduced some new ones of his own inspiration, some of which are: Method for the immediate determination of true creatinine,<sup>14</sup> simple method of determination of inulin<sup>15</sup> without urine collection, simplified method for the determination of para-amino-hippuric acid in plasma, simple, rapid and accurate method for the determination of blood sulphates, estimation of renal glomerular filtration from serum creatinine, new colorimetric method for the quantification of urine proteins,<sup>16</sup> enhanced diuretic reagent for the determination of serum proteins,<sup>17</sup> combined Jaffe enzyme method for the determination of serum creatinine.<sup>18</sup>

He was elected professor at the Medical School of Athens in 1990 and the Academy of Athens awarded him with the Excellence in Science prize in March 1988 as a reward for his clinical and research work.

#### 5. CONCLUSIONS

During his 40 years of service as an academic lecturer, Yatzidis taught generations of students and residents in Internal Medicine. Many Greek nephrologists cooperated and learned alongside with him. He guided and supervised dozens of doctoral theses and recitations. At least 15 of his students became professors and associate professors in Greece and abroad.

He was a regular member of 30 scientific societies and an honorary member of the Hellenic Nephrological Society. He was a member of the editorial committees of 6 foreign language medical journals. He was one of the founding members of the European Dialysis and Transplantation Association (EDTA) (Amsterdam, 1964). He served as chairman of the National Research Institute and the Biomedical Research Committee of the Ministry of Health.

## ΠΕΡΙΛΗΨΗ

**Ιπποκράτης Γιατζίδης: Ένας σπουδαίος αλλά παράλληλα ταπεινός Έλληνας καθηγητής που αξίζει να θυμόμαστε**

Π.Ε. ΑΝΔΡΟΝΙΚΙΔΗ,<sup>1</sup> Γ. ΨΗΜΕΝΟΣ,<sup>2</sup> Τ. ΑΠΟΣΤΟΛΟΥ<sup>1</sup>

<sup>1</sup>Τμήμα Νεφρολογίας «Αντώνιος Γ. Μπίλης», Γενικό Νοσοκομείο «Ευαγγελισμός», Αθήνα, <sup>2</sup>Μονάδα Αιμοκάθαρσης, «Ευγενίδειο» Θεραπευτήριο, Ιατρική Σχολή, Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών, Αθήνα

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Ο καθηγητής Ιπποκράτης Γιατζίδης υπήρξε ο «πατέρας της Νεφρολογίας» στην Ελλάδα και ένας από τους πρωτοπόρους νεφρολόγους παγκοσμίως. Γεννήθηκε στις 22 Σεπτεμβρίου 1923 στην Αθήνα και πέθανε στις 27 Αυγούστου 2013. Έχοντας πάθος με την επιστήμη του, αφιερώθηκε στη δημιουργία νεφρολογικών μονάδων υψηλού επιπέδου, καθώς και στην έρευνα. Έχει διατελέσει διευθυντής πολλών ερευνητικών μονάδων τόσο στην Ελλάδα όσο και σε άλλες χώρες και ανέλαβε για λίγο τη διοίκηση του Ιατρικού Κέντρου της Γενεύης. Πάντα υπέρμαχος της συνεχούς κατάρτισης για τον ίδιο και τους συναδέλφους του, έτσι ώστε να συμβαδίζουν με τα νέα δεδομένα και να παρέχουν την καλύτερη δυνατή και επίκαιρη θεραπεία για τους ασθενείς. Ο «Τεχνητός Νεφρός Γιατζίδη» είναι ίσως το πλέον σημαντικό του επίτευγμα και μια αξιοσημείωτη ανακάλυψη στη Νεφρολογία παγκοσμίως. Η δραστηριότητά του στη συγγραφή επιστημονικών κειμένων εκδηλώθηκε σε πολλά δημοσιευμένα άρθρα, τα περισσότερα από τα οποία σε διεθνή περιοδικά και με πολλές αναφορές. Στις αρχές της δεκαετίας του 1970 ίδρυσε το Τμήμα Νεφρολογίας του Νοσοκομείου «Αρεταίειου» Αθηνών για να υποστηρίξει ασθενείς που χρειάζονται νεφρολογική παρακολούθηση. Την τελευταία περίοδο της ζωής του συνέχισε την έρευνά του στο Εργαστήριο Πειραματικής Χειρουργικής στην Ιατρική Σχολή Αθηνών. Ήταν γνωστός για την καλοσύνη και τη γενναιοδωρία του στους συνεργάτες του. Το παρόν κείμενο στοχεύει να ακολουθήσει τα επιτεύγματα της ζωής και της εργασίας του.

**Λέξεις ευρητηρίου:** Καθηγητής Γιατζίδης, Τεχνητός νεφρός με χρήση άνθρακα

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Corresponding author:

Π.Ε. Ανδρονικίδη, 92 Acharnon street, 112 51 Athens, Greece  
e-mail: eva\_andr@hotmail.com