POSTER PRESENTATIONS
HISTORY OF NEPHROLOGY IN ARAB WORLD
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Nephrology was first recognized as a specialty in 1960, hemodialysis (HD) used in clinical ground in 1960-1965 and peritoneal dialysis (PD) in 1978. Egypt started dialysis in 1958 with the first of dialysis department in 1979, currently approaching 61 thousand hemodialysis patients. Algeria performed PD, HD for acute cases in 1962, 1971 respectively. In Sudan there are 60 dialysis centers treating 6000 patients out of them 122 are on PD. First hemodialysis in Iraq was in 1964. Morocco started HD in 1978. Saudi Arabia entered HD field in 1972 and currently there are 184 dialysis units, while PD started on 1980. Yemen dialysis began on 1980. Syria national dialysis program was working in 1986. Tunisia used PD for acute cases in 1962 with first artificial kidney in 1963, nowadays there are 13 dialysis units. Jordan performed first dialysis in 1968; today there are 84 HD centers. United Arab Emirates initiated PD in 1976 and HD in 1977. First two dialysis units in Libya were in 1971, 1979. Lebanon used PD for acute cases in late fifties and in 1994 started PD; currently there are 61 HD centers. Nephrology service started in Oman in 1981 and first PD patient was treated on 1983. Dialysis started in Kuwait in 1976 and currently there are 9 centers. Qatar introduced PD in 1976 and HD in 1981. Lastly Bahrain started HD in 1972. At the end highlighting this history shaded the light on Arab experiences aiming for achievement in future.

CROSS DONOR CIRCULATION – REVISITING AN OLD TECHNIQUE FOR INNOVATION POTENTIAL IN TRANSPLANTATION
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INTRODUCTION
Historically, the term ‘cross-circulation’ or ‘donor circulation’ refers to the perfusion of one individual by another. Subsequently when organs of one of the individuals in reciprocal blood transfer are not working efficiently, their functions can be taken over by the other individual through connection of circulations. The methods applied for reciprocal blood transfer are, parabiosis which requires the union of the two individuals by a tissue bridge, cross circulation which implies blood transfer between the individuals by using the arteries and cross transfusion where the venous side of the circulation is used as a source of blood. According to past medical cases reported in the literature, the application of cross-circulation was easy to apply, safe from a mechanical point of view and effective, causing relatively minor side effects in the donor.

METHODS
A comprehensive search of the literature for related publications to cross donor circulation was performed, with first reports dating back to 1926.

RESULTS
One of the principal fields where this technique was applied is cardiovascular surgery, as an inexpensive mean of instituting cardiopulmonary bypass in humans. As an alternative to
kidney transplantation in conditions of renal failure. There have been studies conducted in animal models utilizing the kidneys of healthy animals such as rabbits as hemoperfusion units for other uremic animals. The procedure of homohemodialysis involves the circulation of anticoagulated blood from the uremic animal to the normal one and then back to the uremic animal through the femoral vessels using a tube system. Other fields of application were, extracorporeal liver perfusions bridging patients with fulminant liver failure to recovery or transplantation and extracorporeal utilization of xenospleens as means of detoxification in sepsis or burns.

CONCLUSION
In the setting of specific clinical indications it might be proper to restore our attention to this old therapeutic modality in order to readjust its applications in challenging clinical scenarios of modern medicine such as renal transplantation.

HYPOXIA - INDUCIBLE FACTOR STABILIZERS FOR ANEMIA OF CHRONIC KIDNEY DISEASE: A NEW CLASS OF DRUGS WITH ALMOST ONE CENTURY OF HISTORY

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Hypoxia-inducible factor (HIF) stabilizers are a new class of drugs, which are tested in phase III clinical trials for the treatment of anemia of chronic kidney disease (CKD). HIF stabilizers prevent HIF1α and HIF2α degradation increasing the transcription of erythropoietin encoding gene. However, another compound, the cobalt chloride (CoCl₂), was used in the past, before the discovery of HIF, for treating anemia of CKD. Cobalt increases erythropoietin production by stabilizing HIF.

We searched the literature, mainly but not exclusively the PubMed database, to find out the origins of CoCl₂ use for the treatment of anemia of CKD and the reasons that led to its abandonment.

It was 1929 when Klara and Karl Waltner showed that cobalt administration induces polycythemia in rats. Thereafter, studies confirmed the above in other species. Clinical trials on the use of cobalt as an anti-anemic agent were performed from the late 1940s to the late 1970s. Usually, cobalt was administered as tablets of CoCl₂ at daily doses 25-300 mg. Gardner published in 1953 the first clinical study showing that CoCl₂ stimulates erythropoiesis in CKD patients within one month. From 1953 to 1978, seven more clinical studies confirmed the efficacy of CoCl₂ in the treatment of anemia of CKD. However, in one study published in 1976, a patient died due to cardiomyopathy, and myocardial cobalt was found to be 25-80 times higher than in the control samples. Accumulated evidence showed that cobalt might induce gastrointestinal upset, reversible hypothyroidism, cardiomyopathy, reversible hearing loss, and optic nerve atrophy. As a consequence, CoCl₂ for the treatment of anemia of CKD was abandoned.

The above data indicate that in the past, empirical observations led to trials with compounds that act in ways similar to those currently investigated for the discovery of modern drugs. The safety of the new HIF stabilizers remains to be confirmed.
THE PAST AND THE FUTURE HISTORY OF NEPHROLOGY.
FROM KIDNEY ORGAN TO KIDNEY ORGANOID
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Medical science was always in accordance with philosophical aspects of its era. Initially the astonished “newborn” man was standing in front of unexplained nature miracles dividing and giving them a “magical/theological” background (polytheism). Gradually as philosophy started to emerge it became faintly seen that logic and reason could explain the former unexplained issues and the labor of science began. Science (including medicine) started to cancel, explain and unify many of the former theological models searching the beginning of all in order to answer the fundamental arising question/statement: Which is the origin of everything? The one is the origin of everything (monotheism). Today as many of principal questions concerning human nature have been answered there is the same trend to unify knowledge under the one the origin of all: the human pluripotent stem cell (hPSCs).

Recognition of the importance of the kidney itself is a relatively recent event, and ancient depictions of this organ are scarce. Nowadays due to increasing incidence of chronic kidney disease (CKD) and augmented demand for renal replacement therapy, new therapeutic options are urgently needed. Growing clusters of kidney cells in the lab (regenerative medicine), is a potentially attractive therapeutic option for CKD. One day, so-called kidney organoids – grown from human stem cells – may help repair damaged kidneys, test drugs, model genetic kidney disease, act as a source of specific kidney cell types and generate functional bioengineered kidney tissues.

Despite the many obstacles to overcome for their clinical use (safety and rogue cells) kidney organoids appear to have great potential and may be a promising therapeutic option. Maybe in the future the statement “prevent and cure” the disease in vivo will be replaced by a modern one “model and cure the disease in vitro”. But for such promising future there is a need of strongly justified present and past. As this challenging future is still under birth the past and present history of Nephrology remaining the definitive one for its progress.

THE SELDINGER PROCEDURE - THE METHOD OF VASCULAR ACCESS IN ALL CLINICAL SETTINGS, INCLUDING NEPHROLOGY
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Sven-Ivar Seldinger (1921-1998) came from the small town of Mora, north of Stockholm, Sweden. He completed his medical studies at the Karolinska Institute in Stockholm, and started his career at the Radiology Department of Karolinska Hospital in 1950. He was especially interested in angiography. Several members of Seldinger’s family worked in watch-making and fine mechanics, which certainly influenced his interest in medical technology. At that time, the intravascular administration of contrast media involved catheterization of the vessel after surgical incision of the skin/vessel or the introduction of a small polyethylene catheter via the lu-
men of a needle, or direct puncture of the vessel with the needle. In many cases, the contrast medium could not be injected sufficiently rapidly, and complications were common. In April 1952, Seldinger had “an attack of common sense”. He realized that the sequence in the procedure of catheter introduction to the vessel should be: needle in – guide-wire in – needle out – catheter in over the guide-wire – guide-wire out. His brainwave instantly revolutionized the procedure (Acta Radiol. 1953:39:368-376). The Seldinger procedure became widely used in interventional radiology in Scandinavia, and gradually spread to other clinical settings worldwide.

Vascular access had been the “Achilles heel” of hemodialysis treatment since its introduction in the 1940s, and the need for dialysis was continuously increasing. The employment of the Quinton–Scribner shunt in 1960 (and later the Cimino–Brescia arteriovenous fistula in 1966) was the most important steps in improvement of hemodialysis treatment but still the method of vascular access for acute need of therapy or investigation was missing. The Seldinger procedure solved this problem and was unrivaled due to its simplicity, rapidity, and low risk of complication. Stanley Shaldon introduced this procedure in dialysis in 1961 (Lancet ii, 857-859). Since then, it has been used for all extracorporeal procedures in dialysis department when no other vascular access is attainable. Seldinger applied this procedure also for catheterization of the renal artery (1955) and selective renal angiography (1964), and many other pioneering interventions. He returned to Mora in 1966 and worked at the local hospital until his retirement in 1986.

Electronic Health Services in End-Stage Renal Disease: Transition from the Traditional Way of Archiving to Online Health Applications. Greece’s Experience

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Chronic kidney disease is considered to be a serious public health issue. According to international data, one out of ten individuals suffers from a degree of chronic kidney damage. Unfortunately, there are no official data in Greece and this is particularly worrying. It is, therefore of great necessity to move from the traditional way of archiving to the use of electronic health records and online applications.

According to data, in 2016, 24.7% patients in Greece were undergoing hemodialysis via a tunneled central venous catheter. However, there is lack of important information such as who placed the catheter, the catheter’s tip, its lifetime, its complications, morbidity and mortality of these patients. This leads to a lack of public health strategy in this sensitive group of patients.

The Department of Nephrology in our hospital in collaboration with the Information Technologies Institute of the Center for Research and Technology and the Hellenic Society of Nephrology, developed the first national online application of patients dialysed via a tunneled central venous catheter. In December 2018 the application was notified to all dialysis units in order to register their data and at the same time to collect all necessary information for the management of the disease.
This will benefit the doctors, the patients and the national health care system. The application provides an electronic collaborative environment with direct exchange of information among physicians, interconnection with patients and ultimately more efficient management of health system resources.

In conclusion, in chronic kidney disease, focus should be put on electronic health actions and information systems with personalization of health provided services and the patient should be actively involved in the management of their disease through the electronic health network.

**HISTORICAL MISCONCEPTIONS IN PERITONEAL DIALYSIS**

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We aimed to address certain misconceptions that occurred in the history of Peritoneal Dialysis (PD) and their understanding changed the course of the method.

When PD was firstly presented as a therapeutic alternative for end-stage renal disease (ESRD), it was prescribed as intermittent (IPD) intensive 48h sessions with catheter removal and reinsertion. In 1959, the New England Journal of Medicine rejected the paper by Ruben et al., who successfully treated a young ESRD woman without removing the catheter.

In 1975, the American Society for Artificial Internal Organs (ASAIO) rejected an abstract by Popovich and Moncrief describing the continuous ambulatory peritoneal dialysis (CAPD) method. Later, in 1978, their results were published in the Annals of Internal Medicine.

In 1980, Buoncristiani et al., proposed the Y-set technique reducing peritonitis rate from one episode every 12 to one every 36 months. However, it took 5 years for PD centers in Canada and USA to adopt this development, because the results were suspected not to be true.

In 1996, the results published by the randomized, multicenter CANUSA (Canada-USA Peritoneal Dialysis Study Group) study, supported a close association between the level of peritoneal clearance and survival in CAPD patients. However, in 2001, in a re-evaluation of the CANUSA study, Bargman et al. showed that the favorable results in those patients were mainly due to their residual renal function (RRF).

Contrary to what expected, the large prospective ADEMEX (Adequacy of Peritoneal Dialysis in Mexico) study showed that increased dose of peritoneal small molecule clearance delivered by PD was not associated with patient survival or better quality of life.

In the short history of PD, there were several breakthroughs that changed the application and future of the method, highlighting that medical knowledge is continuously evolving.
THE HISTORY OF HEMODIALYSIS IN TURKEY
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Our first encounter with the concept of hemodialysis was based on the fact when a plane crashed at Ankara Ulus Square in 1963. The lack of dialysis was then understood and the term “acute renal failure” first appeared on the agenda. There was not yet a chapter in Nephrology and kidney diseases were treated within Internal Medicine. Media paid a great deal of attention to dialysis due to the accident and The World Health Organization donated three hemodialysis (HD) machines for the treatment of those who were injured in the accident.

Research shows that at the end of year 1961, a tank type HD machine was imported and first used in the treatment of a patient in Ankara University Faculty of Medicine in June 1962. There were no places, no professional staff allocated to conduct applications of dialysis at that time. Later applications in Turkey were made in Istanbul University Cerrahpa a Faculty of Medicine (1965), Faculty of apA (1969), Faculty of Gü lhane (1972), Hacettepe University Faculty of Medicine Pediatrics (1974), Atatürk University, where I myself established, and Uluda University (1975).

Today, there are about 882 HD centers in Turkey two-thirds of which are private and one-third are public. The fees of these patients are covered by the government and no extra payment is required. These centers are spread all over Turkey and there is no patient who has died due to lack of HD treatment. Patients are taken from and to their homes free and meals are provided by HD centers.

Procedures and regulations related to HD are thoroughly arranged. All centers are supervised twice a year regularly. A certificate program has been implemented since 2000 and authorized staff has been trained and given their certificates for a period of five years.

Recent data reveals that the number of patients in Turkey is about 63,349 and that of devices is 17,322. The rate of annual mortality is 15%. The number of patients who are applied home HD has exceeded 500, which rates Turkey the third in Europe.

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HISTORY OF PERITONEAL DIALYSIS IN TURKEY
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Wegner published his first experimental studies on peritoneal lavage in 1877. George Ganter practiced live peritoneal dialysis (PD) in 1923. The same year Trac Putnam presented PD and dialysis membrane studies on animals. The first stimulus in the treatment of patients with uremia was by Kolff in Holland in 1940 with his artificial kidney application. F. Selingman and Fine put PD into practice in 1946 with peritoneal irrigation.

K. Önen first practiced PD with C. Öker in Istanbul in the early 1950s applying catheter and irrigating with a solution similar to ringer solution. In 1965 U. Ülkü and his research team started using PD which is used today.
Acute PD practices were done by N. Koçak in Istanbul University in 1964. In 1965-1966 first domestic commercial PD solutions were produced. Bottle dialysis and Intermittent PD practices started in 1968-1970. Since 1979 it has been used by the patients themselves. The use of modern Continuous Ambulatory PD (CAPD) with imported bags in several university centers was a successful practice in Ankara. CAPD practice started in Ankara University in 1985 with the use of Braun plastic vacuum bags, Tenckhoff type of silastic permanent catheters and intermediate sets in the modern sense.

CAPD was applied to 33 patients with chronic renal failure between 1985 and 1986. The results of the study were sent to the “4th Renal Diseases and Transplantation Congress” Hacettepe University, Ankara, in 1987. This study was then published in Ankara Bulletin of Medicine, being the first article on CAPD.

Automatic Peritoneal Dialysis (APD) practices were started by S. Bozfakio lu in Istanbul University in 1994.

Domestic CAPD bags were produced in Turkey in 1995.

Turkish multicenter peritoneal dialysis study group (TULIP), the introduction of nationwide standards and regulations for the clinical use of peritoneal dialysis had a significant role (1998).

The number of PD including pediatric cases in Turkey is 3346 according to the data of 2017 from Ministry of Health and Association of Turkish Nephrology. The rate of PD patients according to gender was 45% in women and 55% in men.

Hieromartyr Therapon Bishop of ancient Kition, Cyprus (3-4th century AD), was born in the East and lived ascetical life. Later he moved to the island of Cyprus, where he served as a Bishop. He died a martyrlic death, probably during the persecution under Diocletian (284-305AD).

The saint’s relics, initially kept in Cyprus, were transferred to Constantinople, in order to be preserved from the second Arab invasion (653AD). They were placed in a temple in honor of the Icon of Maria “Eleousa” translated “the Merciful”. In 806AD the saint’s relics were transferred again into a temple built in his honor. During the relics’ transfer myrrh flowed and miracles took place.

From that time and up to date people believe, that the seriously ill are healed through Saint Therapon’s prayers. He is considered the protector saint of children suffering from fever and the healer of kidney pains. Miraculous healing of kidney pains happens in a monument in Larnaka, believed to be the grave of the saint. Healing of the patient’s kidney pain is accomplished by rubbing the waist upon the monument of the saint.
The role of Therapon in the eastern church, as a healer Saint, is explained by his miracles and also simply by his name – Therapon in Greek means server and healer. The belief of him as a healer of kidney pains is mainly practiced on the island of Cyprus. Another recognized patron saint of kidney sufferers is the Saint virgin and martyr Marina of Antiochia in Pisidia (255–270AD).

THE HARD WAY FROM BENCH TO BEDSIDE: HISTORY LESSONS FROM THE PATHOGENESIS OF IDIOPATHIC MEMBRANOUS NEPHROPATHY (MN)

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MN is the most common cause of adult nephrotic syndrome. Histopathology involves typical subepithelial immunocomplexes, with obvious pathogenetic role. Today, study of pathogenesis, which began in 1959, has proven that MN is an organ-specific autoimmune disease. Our aim was to follow and draw some historical lessons from this 60 year long course of studies on MN.

Heymann nephritis (HN; 1959) is the classical animal model, in which the pathogenetic role of immunocomplexes in MN was first established. HN is induced by injection in rats of tubules brush border (BB) antigens (active HN) or the corresponding antibodies (anti-BB; passive HN). In 1978, lesions of HN forming ex vivo after anti-BB injection in an isolated perfused rat kidney model, i.e. in the absence of circulating BB antigens, proved that immune-complex formation occurs in situ. In 1982, megalin was identified as the epithelial auto-antigen in HN. However, as megalin could not be detected in human podocytes, pathogenesis of human MN still remained unresolved. In 2002, neutral endopeptidase was identified as the podocyte antigen in cases of antenatal allo-immune human MN, clearly implicating the pathogenetic role of podocyte membrane proteins and in situ immune-complex formation. In the next years, phospholipase A2-receptor and Thrombospondin type-1 domain containing 7A were identified as organ-specific auto-antigens associated with MN.

The maxim “scienza facit altus” would precisely describe the evolution of 60 years research on the pathogenesis of MN, which was decisively promoted in 20 years’ surges. This pattern may change as we reach the exciting new scientific era.
ON THE CORRELATION OF THE URINES’ SPECIFIC GRAVITY AND THE NATURAL HISTORY OF A RENAL DISEASE ACCORDING TO ANCIENT AND MEDIEVAL GREEK SOURCES

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The urine examination by a naked eye, called uroscopy, was for millennia practically the main laboratory method to reach a diagnosis and prognosis of many diseases and there is an abundant literature on the subject. However, any research concerning its specific gravity, even as an implication could not be traced by us. Thus, the aim of this paper was to try and find out if there was any such implication in the Ancient and Medieval Greek literature and its correlation with the natural history of a renal disease

METHODS
We read the original relevant works by Hippocrates, Galen, Anonymi Medici Minores, and Stephanos and correlated them with Avicenna’s Canon and the 19th – 21th centuries’ literature on the topic.

RESULTS
The term “specific gravity” was never mentioned by the ancient and medieval writers. Indirectly, they referred to it by discussing the different location in the matula (urine examining vial) of a semi-solid formation. If it laid at the bottom it was cold “hypostasis” (sediment), if at the middle “enaiorema” (suspension) and if floating at the top “nephelion” (nebulum). All the mentioned medical authors agreed that sediment usually testifies a healthy condition and a floating formation a very severe disease. The suspension could either be a sign of recovery if it followed a nebulum and was thus descending or of deterioration if it followed a sediment and was thus assenting. As its location depended on the difference of weight between the semisolid formation and the liquid part of the urine, indirectly it measured its specific gravity. Very recently the urine specific gravity is considered an accurate mark of renal function equal to creatinine clearance or proteinuria.

DISCUSSION - CONCLUSION
Indirectly the location incorporated in sperm the principle of the hydrometer by which we estimate the difference of weight between any liquid and the particles immersed in it. As the weight of the former frequently depends on its viscosity, the studied ancient and medieval authors correlated in practice proteinuria and/or concentrating ability of the kidneys with the semisolid’s location.
HIPPOCRATES YATZIDIS: A GREAT AND HUMBLE GREEK PROFESSOR TO REMEMBER

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Professor Hippocrates Yatzidis was born on September 22, 1923 in Athens and died on August 27, 2013. He finished his medical study at the Medical School of Athens in 1950.

After the graduation he continued his studies at Paris at Claude Bernard Center in metabolic disorders from 1955 to 1959. He has been the director of many research units in Greece as well as in other countries and took over the management of Geneva Medical Center for a while. One of his dreams was to create a high profile Nephrology Department in Greece, this is the reason why he encouraged his colleagues to reeducate themselves in other countries and come back to Greece with new ideas and great knowledge.

In 1963 he demonstrated charcoal’s binding capacity for toxic substances of endogenous or exogenous origin and used it for hemoperfusion systems. His team designed equipment named “the Carbon Kidney” and connected it to the patient’s artery and vein in order to remove barbiturates from two patients, a process that successfully saved their lives. This method is known until nowadays literature as “Yatzidis charcoal artificial kidney”. Professor Yatzidis has been more than a mentor for professor Dimitrios Oreopoulos and together worked on various articles. He was the one who suggested in the 1970s that sodium thiosulfate solution might prevent the vascular calcification that led to acral gangrene in dialysis patients and may be useful as a treatment for recurrent calcium nephrolithiasis. In the early 70s he founded the Nephrology Department of Aretion Hospital of Athens.

His publishing activity was manifested in many scientific papers, most of them in international journals, and a lot of citations. In the last period of his life, he continued his research at the laboratory of experimental surgery at the Medical School of Athens. He was known for his kindness and generosity to his associates.

MIRACULOUS RENAL HEALING IN THE CHURCH OF THE LIFE-GIVING SPRING IN CONSTANTINOPLE: COMPENDIUM (1812) FROM THE ORIGINAL

BY NIKIPHOROS KALLISTOS XANTHOPULOS (1256-1335)

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Nikiphoros Kallistos Xanthopoulos (1256-1335) was a priest in Hagia Sofia and a scholar considered as the last greek ecclesiastical historian. Apart from “Ecclesiasticae Historiae”, dedicated to the emperor Andronikos-II Palaeologos (1282-1328), he wrote poems, liturgical hymns and “synaxaria” of the Orthodox Church. His book of the miracles in the church of the life-giv-
ing spring in Constantinople was published in a compendium translation in vulgar Greek (1812). Initiated by the ex-Bishop of Stages (Meteora) Paisios (1784-1808), this translation aimed to offer the contemporary greeks a book more comprehensible and thus more beneficial than the original. Our aim was to analyse from this compendium the forms of miraculous healing applied and the renal ailments healed.

Miraculous healings (54 among 63 miracles) included prayers, visions and the spring-water. Drinking was applied in 43, washes in 11 and mud compresses in 8 cases. Renal ailments were present in 11 cases: bladder stones with dysuria, hematuria, and pyuria or urine retention in 9 and hydrops in 2. Emperor Ioustinian (527-565) was healed from an obstructive bladder stone. Help was sought after doctors’ treatments failed. In two cases water drinking was applied despite medical advice and side effects of drug-therapy were healed in two other.

In the compendium edition of the book of Nikiphoros Kallistos Xanthopoulos on the miracles of the life-giving spring in Constantinople healing of renal disorders was very often (20%). This publication implicates the narrow relationship of greek scholars, during hellenic Enlightenment (1750-1821), to the Palaeologist Byzantine Humanism.

**PROFESSOR MIROSLAV MYDLÍK, MD, DSC. (1932-2018), A SCIENTIST**

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**Aim of the study** was to describe the impact of one the most important pioneers in the field of nephrology in Central Europe in the second half of the 20th century.

**METHODS**

I described the life and activities of Miroslav Mydlík.

**RESULTS**

He was born on 7/21/1932 in Kosice (Czechoslovakia) where he died on 9/6/2018. He studied at the Medical Faculty of Charles University (MFCU), in Prague, where he graduated (1957). Thereafter he worked at the Department for Infectious Diseases and from 1959 at the 1st Internal Clinic (IC), (later named IVth) of L. Pasteur University Hospital and Medical Faculty of P.J. afárik University (UPJŠ). After specializing in internal medicine and in nephrology (1973), (the first in Slovakia), he was assistant professor. He became "Doctor of Medical Sciences" at the MFCU (1984) and in 1992 was appointed a full Professor of Internal Medicine. His lifelong scientific activity was focused on nephrology, to which he was directed by Professor Pór (his boss) and Professor Brod during his stay in Prague, 1963. He performed the first percutaneous renal biopsy (1963); he was a founder of a dialysis centre at the 1st IC (1966); he carried out the first hemoperfusion (HP) through active charcoal in the former Czechoslovakia (1977). His publishing activity includes over 450 scientific papers. most of them were on a biochemical basis. His topics were vitamin B₆, oxalic acid as uremic toxin and HP in vivo and in vitro. He was: the head of IVth IC, Nephrological Clinic; Prorector of the UPJŠ and Main advisor for nephrology of the Ministry of Health. He was introduced into the "Hall of Glory of Slovak Medicine"(2015). His hobbies were history and world literature. He was a member (1998-2018) and councillor (2010-2015) of IAHN. His lifelong literary interest was Franz Kafka’s works. He created Kafka’s monument in High Tatras, where Kafka was treated

**CONCLUSION**

Professor Mydlík’s impact on the field of nephrology in Slovakia was multiple.

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**REFERENCES ON KIDNEYS IN GREEK BOOKS OF THE PRE-GREEK INDEPENDENCE REVOLUTION PERIOD (BEGINNING OF THE 19TH CENTURY)**

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During the pre-Greek Independence Revolution (1821) period the European Medical Knowledge is transmitted into the Greek lands mainly via translated texts. This stands true for many a scientific and literary texts in a movement called later “The Modern Greek Enlightenment). The movement aimed to the cultural, and eventually the political, rising of the Greek people who were usually illiterate under the Ottoman regime for almost for centuries. In some of those translated books we find scattered references to the kidneys and their function. In a book published in Vienna in 1799 there are references to the anatomical location of the kidneys and their texture, the cortical and medullary parts of them and the malpighian bodies. In the 1810 Anastasios Georgiadis, later professor of Medicine at the newly established Athens University used the term *Urinary tract*. In another book of 1802 titled “Chemical Philosophy” the urine’s consistency and the then recently discovered elements urea, uric acid, glucose, phosphates are presented. It was emphatically stressed that that the modern studies on the urine characteristics will attribute to the definition of the body status both for a healthy and an ill person. In the same period the term *diuresis* is introduced as reborrowing in to the Greek medical vocabulary.

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**PROFESSOR JIŘÍ JIRKA, MD, DSC. – STUDENT AND SUCCESSOR OF PROFESSOR JAN BROD**

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Jiří Jirka was born on March 3, 1927 in Kroměříž, Czechoslovakia, and died on May 6, 2016. Immediatly after World War II, in autumn 1946, he started the studies in Charles University Medical School in Prague. Early during his studies he joined Prof. Belobradek and his team in the Institute of Biology and participated in the first post-war experimental study of this Institute. Later during his studies he also worked at the 1st Dept of Medicine, Charles University Prague, where he met Professor Brod. After graduation in 1951 he worked in a department of medicine in a district hospital in Most. In 1953 he changed to Prague to the
Institute for Cardiovascular Research, the second institute in the field worldwide that time, whose second director became Jan Brod. Under his supervision Dr Jirka started his research as a research fellow with completing his CSc thesis (roughly equivalent of PhD) in 1958. In 1961, he overtook leadership of the Hypertension Research Group after J Brod and changed the focus of studies from hypertension to acute and chronic kidney failure. In 1971, this Institute became a part of a newly established Institute for Clinical and Experimental medicine where Dr Jirka worked as a scientist and leading physician until 1992. He was actively involved in the introduction of hemodialysis, acute peritoneal dialysis and especially kidney transplantation in the former Czechoslovakia as well as in Cuba. His current science citation index is 781, H-index 8. The most frequently cited publication (almost 500 times) is Circulatory changes underlying blood pressure elevation during acute emotional stress in normotensive and hypertensive subjects published in Clin Sci in 1959 together with J Brod, V Fencl and Z Hejl. The textbook Renal Allograft Biopsy. Image, Interpretation, Interventions (Academia Prague 1997) co-authored P Rossmann and K Matousovic summarized a 25-year collaboration between two nephrologists and one pathologist (PR) in the field of kidney transplantation.


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Paul Langerhans (1847-1868) —German pathologist, physiologist and biologist— in 1869 described in the thesis (Beiträge zur mikroskopischen Anatomie der bauchspeicheldrüsen) the pancreatic islet without advancing hypothesis on their function.

Diamare (1871-1966) —a scientist born and died in Naples where he was professor of Histology, General Physiology and Embriology (1923-1944)— was the most innovative and successful in understanding islet function. He performed comparative studies in toelosts (mainly in Lophius), reptiles, mammals, amphibia and birds by utilizing the facilities of the Marine Station founded by Anton Dohrn (1840-1909) and those at the Institute of Comparative Anatomy of the University of Naples.

In studies published in the years 1896-1907 (Boll Soc Natur Napoli 1898:117-122; Int Monatschrift für Anatomie und Physiol 1899; XVI: 140-155 and 155-176) and XXII 1905; Il Tommasi Giornale di Biologia e Medicina1907: 132-137, 152-155) Vincenzo Diamare demonstrate that 1. The cells of Langherans are epithelial structures different from zymogenic cells and may be considered vascular glands. 2. These cells produce a granular substance colored by fuchsin —which is different from that produced zymogenic acinar cells of the pancreas—and is secreted in blood vessel (endocrine function), 3. These cells are constant in man and vertebrates and independent from zymogenic acinar cells of the pancreas cells; 4. The islet of Langerhans have an endocrine function in connection with the metabolism of glucose: hyperglycemia and diabetes are associated with inadequate functioning.
The internal secretion was named insulin by E. Sharpey-Schafer (1916). John James Rickard Macleod —recipient with Frederick Grant Banting of the Nobel Prize for insulin in 1923— extensively recognized Diamare’s priority (1926) as did many authorities including Sauerbeck, Weichselbaum, Rennie, Schafer, Laguesse, Bowie and Minkowski. Laguesse wrote him: “Vous avez donc beaucoup fait preparer la découvert de Banting!”.

LUDWIK HIRSZFELD (1884-1954) – PIONEER OF BLOOD TYPE TESTING. SIGNIFICANCE FOR ORGAN TRANSPLANTS

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Proper selection of the organ to be transplanted requires a series of tests and determines the effectiveness of the treatment. The first condition is the compliance of the blood types between the donor and the recipient. In 1901 Karl Landsteiner discovered that human blood had different properties and distinguished three blood groups: A, B, and C. In 1910-11 Emil von Dungern and Ludwik Hirszfeld discovered Mendelian inheritance of blood types. Their division into four basic groups A, B, AB and O has been used since 1928. The same researchers found subtypes A1 and A2 within the type A.

Ludwik Hirszfeld (1884-1954) was born in Warsaw and studied medicine in Würzburg. In 1907 he received a doctorate at the University of Berlin and moved to the Cancer Research Centre in Heidelberg and, in 1911, to the University of Zurich. Being a volunteer in World War I in Serbia, he fought a typhus epidemic. In 1918-1919, with his wife Hanna, researched and described the uneven distribution of blood type features that reflects the diverse evolutionary adaptations of humans. In the 1920s, he co-founded the National Institute of Hygiene in Warsaw. During World War II, he spent two years in the Warsaw ghetto, where he fought infectious diseases, typhus and tuberculosis. After the war, he headed the Department of Medical Microbiology at Maria Skłodowska-Curie University in Lublin. In 1945 he worked in Wrocław as the Head of the Department of Microbiology. He died in Wrocław.

The importance of Hirszfeld’s contribution to our knowledge of the blood type system was confirmed by Karl Landsteiner in his Nobel Address, by choosing Hirszfeld to the Presidency of the Blood Group of the Second International Congress of Blood Transfusion in Paris in 1937 and by naming after him the Institute of Immunology and Experimental Therapy of the Polish Academy of Sciences in Wrocław.
Jan Sobieski was born in the Polish noble family in 1629. Before he became King of Poland in 1674 he successfully fought Cossacks, Tartars and others as the Field Crown Hetman. His wife, Mary, daughter of the French marquise D’Arquien, ex-wife of Jan Sobiepan Zamoyski, was a member of one of the richest aristocratic families in Poland. During his rule (1674-1696) Jan III Sobieski defeated the Turkish Kara Mustafa and his army in the battle of Vienna, thus saving Europe from the Ottoman invasion. It is interesting that for years the king suffered from chronic kidney disease with its distinctive symptoms like headaches, swelling dyspnoea, joint pains or skin eczematous changes.

Reference to these appears in his letter to Mary and also in the notes of his personal physician Emanuel de Jona. He was treated with various drugs including mercurial medicaments. Jan III Sobieski died in 1696 in the summer royal residence in Wilanów. Autopsy, supervised by three independent physicians, among other changes, revealed symptoms of kidney damage with a rather big stone in the right kidney. Moreover, his left kidney was reported to be small and damaged. The doctors’ report made a strong suggestion that chronic kidney disease was the main cause of King’s death. The same was concluded in three subsequent analyses performed later by clinicians, pathologists and historians on the basis of documents.

In 2017, Israel’s Isaak Gath performed a retrospective analysis of all known documents and hypotheses of the King’s disease and death. He concluded that, for years, Sobieski presented symptoms of stage III syphilis which he had contracted from his wife. In his opinion, the brain, heart or even kidney disorders were secondary to the main disease. He also suggested that previous descriptions intentionally concealed the real cause of Jan III Sobieski’s illness and death. Nevertheless, independently of the presented controversies, primary or secondary kidney damage was an irrefutable fact and, in our opinion, played an important role in the fatal end of our King.
Forlanini Institute in Rome, and later in Davos and Paris. During WW 2 he fought in the resistance and worked in the 2nd Department of Internal Medicine at the University’s Secret Medical Department. After the war, he organised the 1st Department of Internal Medicine. As a WHO scholarship holder, he trained in the USA in 1947. Already a professor, in 1958 as the chairman of the Nephrology Development Committee at the Ministry of Health, he brought 2 Alwall’s artificial kidneys to Poland. At his clinic in 1959 the team headed by Tadeusz Orłowski performed the first dialysis session in Warsaw. Biernacki’s portfolio includes 75 own works and over 400 conceived under his supervision. The issues investigated concerned lung diseases, including pulmonary tuberculosis, and cardiology. However, his work on nephrology deserves special attention. It deals with key problems of division of hypertension, its malignant phase with changes in the kidneys and pharmacological and balneological treatment. He also describes the case of paroxysmal haemoglobinuria, genitourinary tuberculosis. Additionally, his work concerns the symptoms of uraemia in kidney amyloidosis, the problem of the circadian rhythm of urine production depending on the circulatory capacity and later also the possibility of haemodialysis treatment, including the treatment of mercury poisoning. Nephrology-related topics raised by A. Biernacki were continued by his co-workers and students. Andrzej Biernacki had numerous non-medical interests. He was an expert on music and husband to Grażyna Bacewicz, the outstanding Polish composer and violinist.

THE HIPPOCRATIC SPIRIT AND RENAL PATIENTS’ CARE
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Nephrology is one of the newest medical specialties that developed during the previous century. The earliest scientific approach to clinical nephrology, however, is attributed to Hippocrates granting him the title “father of clinical nephrology”. The principal essence of renal medicine is in fact hidden within the Hippocratic theory of the four humors, as it remarkably resembles the main kidney function which is preservation of fluid and electrolyte homeostasis.

Hippocrates excelled in the art of uroscopy for the diagnosis of nephrological conditions. Uroscopy was considered the cornerstone of medical diagnosis for many centuries. Moreover, within the Hippocratic corpus there are many references to renal problems, such as kidney stones, gout, nephrotic syndrome, hematuria, and acute tubular necrosis. The writer provided a detailed description of their symptoms accompanied with prognostic and therapeutic guidance.

Nowadays renal patients’ care has progressed far beyond the Hippocratic writings. Renal replacement therapy, biologic treatments and organ transplantation have altered the natural course of renal disease. The modern nephrologist must face several dilemmas associated with a chronic terminal condition, such as end-of-life treatment, palliative care and support to both patients and their families. At this time, the Hippocratic spirit emerges as an ethical guide and constant reminder of the moral responsibilities linked to medical profession, in the spirit of the Hippocratic saying “benefit or do no harm”.

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DEATHS CAUSED BY CARDIORENAAL DISEASE AMONG 264 POPES FROM ST. PETER TO ST. JOHN PAUL II (64-2005 AD)

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Diseases and deaths of the Popes are well reported. However we still lack a systematic study of papal deaths associated with diseases of the heart or of the genitourinary tract that is the goal of the present work. The study shows that

- 14 Popes died of gout and its complications: Sisinnius; Honorius IV, Boniface VIII, Pius I, Sixtus IV, Pius III, Julius II, Julius III, Clement VIII, Clement X, Innocent XI, Clement XI, Benedict XIV, Pius VIII.
- 8 Popes died of kidney and bladder stones: Boniface IX, Gregory XIV, Clement IX, Innocent XII, Innocent XIII, Pius V, Pius VI, Leo XII.
- John XXI (1276-1277) died of crush syndrome. On August 10, 1277 the ceiling of his office fell down. He was severely injured. Extracted alive from the rubble he died a few days later.
- 8 Popes died of kidney and bladder stones: Boniface IX, Gregory XIV, Clement IX, Innocent XII, Innocent XIII, Pius V, Pius VI, Leo XII.
- 4 Popes had nephritis: Marcellus II, Hadrian VI, Clement X, Pius VII.
- 4 Popes had prostate disease: Clement XI, Pius VII, Paul VI, John Paul II.
- 2 Popes had infections originating in the urinary tract: Clement VI had severe gonorrhea, Julius II had syphilis.
- 5 Popes underwent cardiac death: Clement XIII, Pius X, Pius XI, Paul VI, John Paul I.

Ages of Popes at death were above mean for their times. Many were martyred (no. 28), some underwent violent death (no. 9), and 2 were imprisoned (Celestine V, Pius VI). Among 264 Popes, prevalence of deaths originating in diseases of the urinary tract and of the heart was 17.4%.