

*Editorial***Challenges Facing the Improvement of Kidney Transplantation - Issues in a Developing Country, Republic of Macedonia**Nikola Gjorgjievski<sup>1</sup>, Ana Stojanoska<sup>1</sup>, Nikolina Smokovska<sup>2</sup>, Petar Dejanov<sup>1</sup> and Goce Spasovski<sup>1</sup><sup>1</sup>University hospital of Nephrology, <sup>2</sup>Special hospital for Nephrology and Dialysis-Diamed, Skopje Republic of Macedonia**Abstract**

Chronic kidney disease (CKD) is a global health problem presented in between 8-10% of the adult population, and about 2 million people need renal replacement therapy (RRT) or have a kidney transplant. The renal transplantation provides quality of life and long-lasting survival superior to the other types of RRT. The treatment and maintenance of quality life of these patients is a challenge for whole community that requires multidisciplinary collaboration between medicine, political, law and sociology field.

Economic deprivation in our and other developing countries and also the meager expenditure on health care, translates into a poor transplantation activity. Although living donors provide the majority of organs in the developing world, social issues and cultural beliefs presents also a barrier to donation. Having poorly-developed renal transplantation is maybe primarily based on the fact that cadaver renal transplantation is not yet developed in our country. In addition, due to the lack of well - organized cadaver transplantation and the problematic events of the resent history in this region, the people of the Balkan countries are prone to go abroad to buy a kidney wherever it is available. Furthermore, the shortage of donor organs is not only a result of a lack of suitable donors, but rather a result of failure to identify donors and obtain consent. Finally, public media coverage has significant effect on people's awareness about transplanting organs by putting positive spirit on the matter.

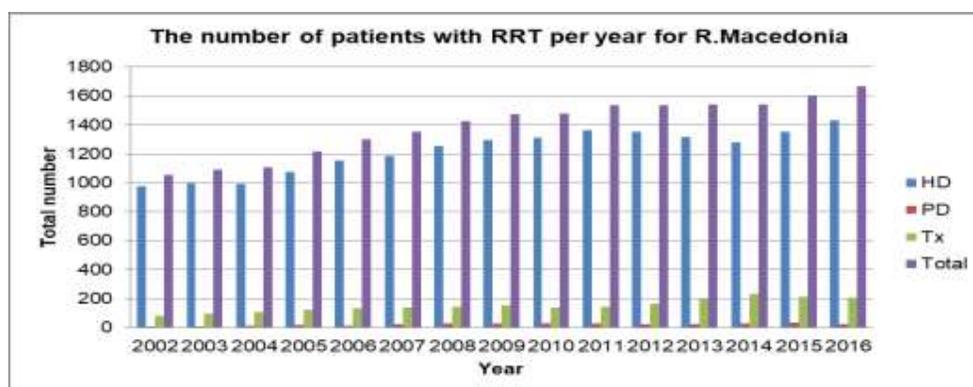
The resolution of challenges in kidney transplantation in a developing country such as Republic of Macedonia is greatly influenced by the health care authority's willingness and capacity to develop a successful national kidney transplant program. Improving the public awareness of the benefits of organ donation through continuous media coverage and close collaboration with influential figures in the society, shifting from deceased to donation in close collaboration with the health professionals should be a strategy to follow.

**Keywords:** kidney transplantation, developing country, organ donation

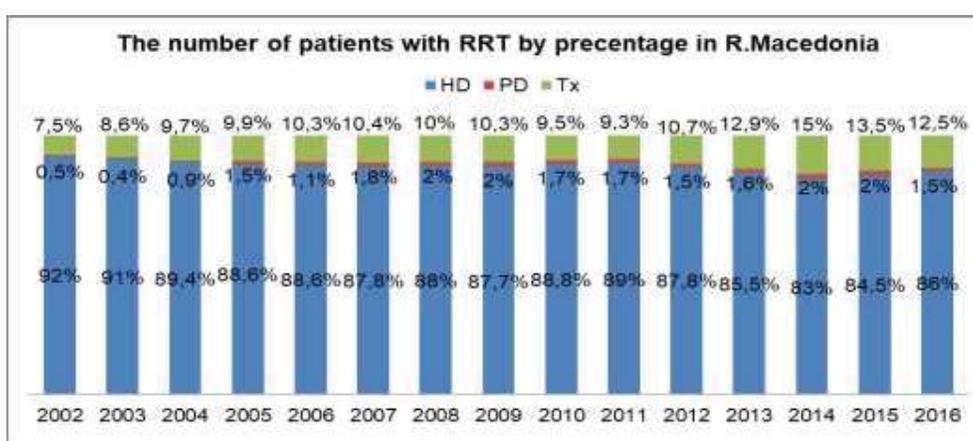
**Introduction**

Chronic kidney disease (CKD) is a global health problem presented in between 8-10% of the adult population, and about 2 million people in need of renal replacement therapy (RRT) [1,2]. CKD is unique in sense of the choice of treatment modalities (hemodialysis, peritoneal dialysis and transplantation). As in other European countries, Republic of Macedonia has a continuous increase in the number of patients requiring RRT. The number of patients with RRT in Macedonia for 2015 is 1598 (929 males), 1353 on hemodialysis (HD), 32 on peritoneal dialysis (PD) and 213 with transplanted kidney [3], while for 2016 the number is 1665 (989 males), 1433 on hemodialysis, 25 on peritoneal dialysis and 207 with transplantation [4], as presented in Figure 1 and 2. CKD is associated with the risk of ESRD, cardiovascular disease and premature mortality. In addition to the implications for morbidity and mortality, the growing prevalence of CKD has significant implication for health and social care systems, because of the high cost of RRT, and its greatest burden experienced in developing countries. The World Health Organization (WHO) estimates that 10% of patients are in need for kidney transplantation annually [5]. The organ transplantation is world widely accepted procedure as successful method for treatment of patients with end-stage organ function damage, such as the liver, kidneys, the heart, lungs etc., improving the quality of life of these patients.

What kind of feelings people may face once they find out their illness, especially those suffering from a chronic irreversible disease? The treatment and maintenance of the quality life of these patients is a challenge for the whole community, which requires multidisciplinary collaboration between medicine, political issues, law and sociology fields.



**Fig. 1.** RRT patients over the years expressed in absolute numbers  
 \*data from ERA-EDTA registry (annual reports), \*HD (hemodialysis), \*PD (peritoneal dialysis), \*Tx (transplantation), \*Total



**Fig. 2.** RRT patients over the years expressed as percentage  
 \*data from ERA-EDTA registry (annual reports), \*HD (hemodialysis), \*PD (peritoneal dialysis), \*Tx (transplantation), \*Total

## Analysis

A living donor kidney transplant program has been developed in Republic of Macedonia since 1977 but without real improvement and progress in the following years. There was a great success with 15 cadaver kidneys transplanted (1987-1989) followed by an average of 13.5 living donor kidney transplantation per year in the period 1996-2011 [6]. In order to increase the number of organs, living donor (LD) transplantation from unrelated and ABO-incompatible (ABOi) donors have been introduced over the last few decades. Facing all the infrastructural, organizational and economical problems in a developing country in transition, the effective organ shortage was slightly overcome by introducing the expanded criteria for living donation, including elderly and marginal donors [7]. Economic deprivation in our and other developing countries and also the meager expenditure on health care, translates into poor transplantation activity with a rate of less than 10 per million populations in contrast to the developed world [8]. Although living donors provide the majority of or-

gans in the developing world, social issues and cultural beliefs are also a barrier to donation.

Having poorly-developed renal transplantation maybe primarily based on the fact that cadaver renal transplantation is not well developed and frequent in our country. In addition, due to the lack of well-organized cadaver transplantation and the problematic events of the resent history in this region, the people of the Balkan countries were prone to go abroad to buy a kidney wherever it is available. The "Promised Land" in the past was India, and also Pakistan [9]. This organ commercialism apart for being unethical is also live threatening, and additionally burdens the health system in a developing country treating the complications that follow solid organ transplantation. Initially, the lack of suitable legislation and infrastructure has prevented growth of deceased donor programs. To address the growing problems of organ commercialism and exploitation of poor vulnerable populations, the Declaration from the Istanbul Summit (DOI) aimed to reinforce the resolution of governments and international organizations developing laws and guidelines to bring an end to the wrongful practices and to preserve the

nobility of organ donation [10]. Furthermore, the shortage of donor organs was not only the result of a lack of suitable donors, but rather the result of failure to identify donors and obtain consent. The low level of awareness in the population, without suitable medium support increased the barrier of the potential donors for transplantation. Finally, the media-coverage has a significant effect on people's awareness about transplanting organs by putting positive spirit on this matter. For example, the Spanish experience in the past is solid and highly relevant. The number of organ donors increased progressively, which is currently twice the rate in 1989 when the Organization Nacional de Trasplantes (ONT) was created. The explanation was improved by the fact that there was a creation of an efficient network of motivated and well-trained transplant coordinators that have been devoted to the effort to inform the media on issues relating to organ donation correctly and in a positive spirit. Thus, the ONT takes responsibility not only for coordination and guidance with regard to the medical profession, but also attempting to optimally use the important mass media impact on the public opinion improving the level of information of the Spanish population on these topics [11]. A 24-hrs transplantation phone-line has also been established. One single telephone number for the entire country with instant access to the ONT at any time was successfully used in this regard. The line was served by trained professionals. This has proved to be a simple and useful tool, and as well an example for our and other developing countries to follow that path towards improving renal transplantation. Maybe the solution of the problem should be sought in multidisciplinary social collaboration, which will increase the public awareness for transplantation and emphasize the importance of organ harvesting.

In our developing region in 2009 a memorandum was signed by the Ministers of Health of the South-Eastern Europe Health Network (SEEHN) [12,13]. This network is a multi-governmental collaboration on health systems from Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Montenegro, Romania and Serbia. Its aim was to transform regional projects into programs of cooperation in between these countries and thus further improving solid organ transplantation. This joined collaboration helped identified national focal points and include health care professionals in implementing action plans specific for each country. It raised number of meetings, workshops, trainings and educational activities that helped health professionals in addressing country-specific needs and development of collaboration with the health care authorities to meet the target objectives for successful solid organ donation [14,15]. These activities were supported by the European Commission and became a model of success for kidney transplantation in this region.

However further and continuous action is needed in order to improve the number of transplants (from living and deceased donors), standardization of clinical practice and possibility for paired kidney donation that will decrease the number of patients treated with hemodialysis or those waitlisted. In other words developing a concept of national self-sufficiency where each country or region obtains its resources within itself or by regulated and ethical regional collaboration [16]. This must include efforts to decrease the incidence and prevalence of CKD and efforts to increase the number of kidney grafts.

## Conclusions

Resolving the challenges in kidney transplantation in a developing country such as republic of Macedonia is greatly influenced by the health care authority's capacity and effort to develop a successful national kidney transplantation program in close collaboration with health professionals. This program must include the resolutions of DOI as a framework to achieve self-sufficiency in every aspect of kidney transplantation, improving public awareness of the benefits of organ donation for the ones mostly in need through continuous media coverage and close collaboration with influential figures in the society, shifting from a deceased to donation successful process. This is demandable but achievable, all for the wellbeing and better quality of life for our patients.

*Conflict of interest statement.* None declared.

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