

## PAYMENT MODELS FOR HEMODIALYSIS SESSION AND COMPARISON OF PRICES IN EURO

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### Summary

The cost of Treatment and follow-up for patients with CKD has been increasing. More than 2 million people worldwide currently live with renal replacement therapies (RRT). Nowadays, global cost of renal replacement therapies (RRT) across the world is estimated to be over \$ 1 trillion. The most frequently performed method of renal replacement therapy in the world and Turkey is hemodialysis. Patients with stage 5 kidney disease need renal replacement therapies to maintain their life. Patients undergoing hemodialysis treatment have to receive treatment by going to a hemodialysis center 2 or 3 times a week or with machine dependency during their lifetime. The hemodialysis process in Turkey is performed by private dialysis centers, public hospitals and university hospitals. According to the Communiqué on Healthcare, Hemodialysis treatment is offered as a package. The content of the hemodialysis package is determined by the Social Security Institution (SGK), which is the only institution for reimbursement of healthcare services.

This package includes hemodialysis consumables, blood thinners applied during the procedure, serums, mandatory laboratory tests, physician examinations, nursing services, medical waste etc. Hemodialysis consumables are imported products. The reimbursement system for hemodialysis in many countries is based on package price; however the contents of the package and reimbursement method may vary according to the countries.

**Keywords:** Hemodialysis package, Hemodialysis package price, Hemodialysis package price in Euro.

## 1.INTRODUCTION

Chronic kidney disease (CKD) is widely considered as a public health problem all over the world because of its gradual increase in incidence and prevalence, its negative impact on the life quality of individuals and their relatives, the high cost of diagnosis and treatment creating a huge financial burden on countries' budgets(1).Chronic kidney disease (CKD) is widely considered as a public health problem all over the world because of its gradual increase in incidence and prevalence, its negative impact on the life quality of individuals and their relatives, the high cost of diagnosis and treatment creating a huge financial burden on countries' budgets(1,3). Despite the progressions on diagnosis and treatment of CKD, the morbidity and mortality rates of this disease are high (5).The resources allocated for the treatment of CKD within health expenses have been increasing each passing day (6).For example, in a survey conducted in England for 2009-2010, CKD constitutes about 1.3% of health expenses (4).

The cost of Treatment and follow-up for patients with CKD has been increasing. More than 2 million people worldwide currently live with renal replacement therapies (RRT). Nowadays, global cost of renal replacement therapies (RRT) across the world is estimated to be over \$ 1 trillion. 6 percent of the health budget in the USA, 5 percent in Japan and 8 percent in Taiwan is spent for the treatment of ESRD patients.

Considering the gradually increasing number of patients, there will be an economic burden which will seriously force the health budgets of developed countries and which cannot be overcome in low-income countries. It is expected that this number will be doubled and the total treatment cost will exceed \$ 1.5 trillion in the next 10 years.

The prevalence of CKD in Turkey is 15.7% according to CREDIT study. According to this rate, about 11.000.000 people in Turkey is directly affected by the CKD.(8) According to the data of Turkish Society of Nephrology, increase in incidence and prevalence of ESRD has been observed during the last 10 years in our country. This high rate gives priority to preventive and therapeutic procedures due to the high level influence on the society.

CKD can be defined as the chronic, progressive and irreversible degradation of fluid, solute, metabolic and hormonal functions of the kidney resulting from a decrease in glomerular filtration rate. The guide relating to the definition and stages of CKD was published in 2002 by the National Kidney Foundation (NKF-KDOQI). Chronic Kidney Disease is clinically divided into 5 stages and evaluated. Stage V is the stage of end-stage renal disease where GFR level is less than 15 mL / min / 1.73 m<sup>2</sup> when renal replacement therapy (RRT) is

required. Renal replacement therapies are Hemodialysis, Peritoneal Dialysis and Kidney Transplantation.

By the end of 2017, 77.311 patients were treated by one of these methods in Turkey. HD is the most frequently performed treatment method (58,635) for the patients receiving primer RRT practiced in Turkey and it is followed by Tx (15,330) and PD (3,346).(2) ESRD incidence was indicated as 146.5 and the prevalence rate was indicated as 956.7 in Turkey.

Hemodialysis is a method of cleaning toxic fluid-solute substances accumulated in blood by which the blood extracted from the patient via the vascular access is moved by pre-prepared solutions from a semi- permeable membrane (dialyzer) in the opposite direction, by adding heparin to prevent blood clotting.

The fundamental principles of hemodialysis are based on simple physical mechanisms. Hemodialysis is a RRT by which the blood taken from the patient via the vascular access, after being heparinized to prevent clotting, is passed through the dialyzer outside the body by means of a hemodialysis device, and is returned to the patient via the vascular access after regulation of fluid and solute contents. It provides cleaning of low molecular weight substances accumulated in the body. The semipermeable membrane (dialyzer) allows only the passage of water and small molecules while the blood is flowing on one side of the membrane and dialysate solution on the other. It doesn't allow the passage of proteins and blood cells in the blood. In Hemodialysis, the passage of fluids and solutes can be done by the mechanisms of diffusion and ultrafiltration. The necessary mechanism for performing hemodialysis should have: water system, hemodialysis device, dialyzer, dialysate arterial-venous needles, arterial-venous set and vascular access.

## **2.PURPOSE**

To compare Hemodialysis reimbursement systems and the prices paid in the world and to form an opinion about ideal payment method for Hemodialysis in Turkey.

## **3.METHOD**

Reimbursement models for Hemodialysis and prices of reimbursement in Euro of the countries have been compared one-to-one.

## **4.FINDINGS**

The hemodialysis process in Turkey is performed by private dialysis centers, public hospitals and university hospitals. According to the SUT (Communiqué

on Healthcare) there are two basic features that differentiate Dialysis Centers from other health care providers. First: dialysis centers only provide dialysis services. The other is: The hemodialysis procedure is included in the group of healthcare services which doesn't require an extra payment. (7) According to the SUT (Communiqué on Healthcare), Hemodialysis treatment is offered as a package. The content of the hemodialysis package is determined by the Social Security Institution (SGK), which is the only institution for reimbursement of healthcare services. This package includes hemodialysis consumables, blood thinners applied during the procedure, serums, mandatory laboratory tests, physician examinations, nursing services, medical waste etc. (7) Hemodialysis consumables are imported products. The cost for a session of hemodialysis is 230TL.(7)

In European Union countries such as Sweden, Spain, UK, Germany and Italy, the package pricing is available within the reimbursement system for hemodialysis. This package includes hemodialysis consumables, blood thinners applied during the procedure, serums, mandatory laboratory tests, physician examinations, nursing services, medical waste etc. Although the hemodialysis packages are similar in these countries there are differences in reimbursement prices. .(Graphic1)

Table1: The price of Hemodialysis session by years in Turkey.TL/EURO

SUT Year of Change	TL	EURO**
2002	93,54	61,05
2003	99,42	56,77
2004	110,43	58,05
2005	137,99	86,36
2010	145,00	73,87
2014	155,00	56,18
2016	175,00	48,03
2017	192,50*	41,17*
2018	230	39,16

\* Average price for each session \*\* Euro Exchange rate of Turkish Central Bank on November 30<sup>th</sup>

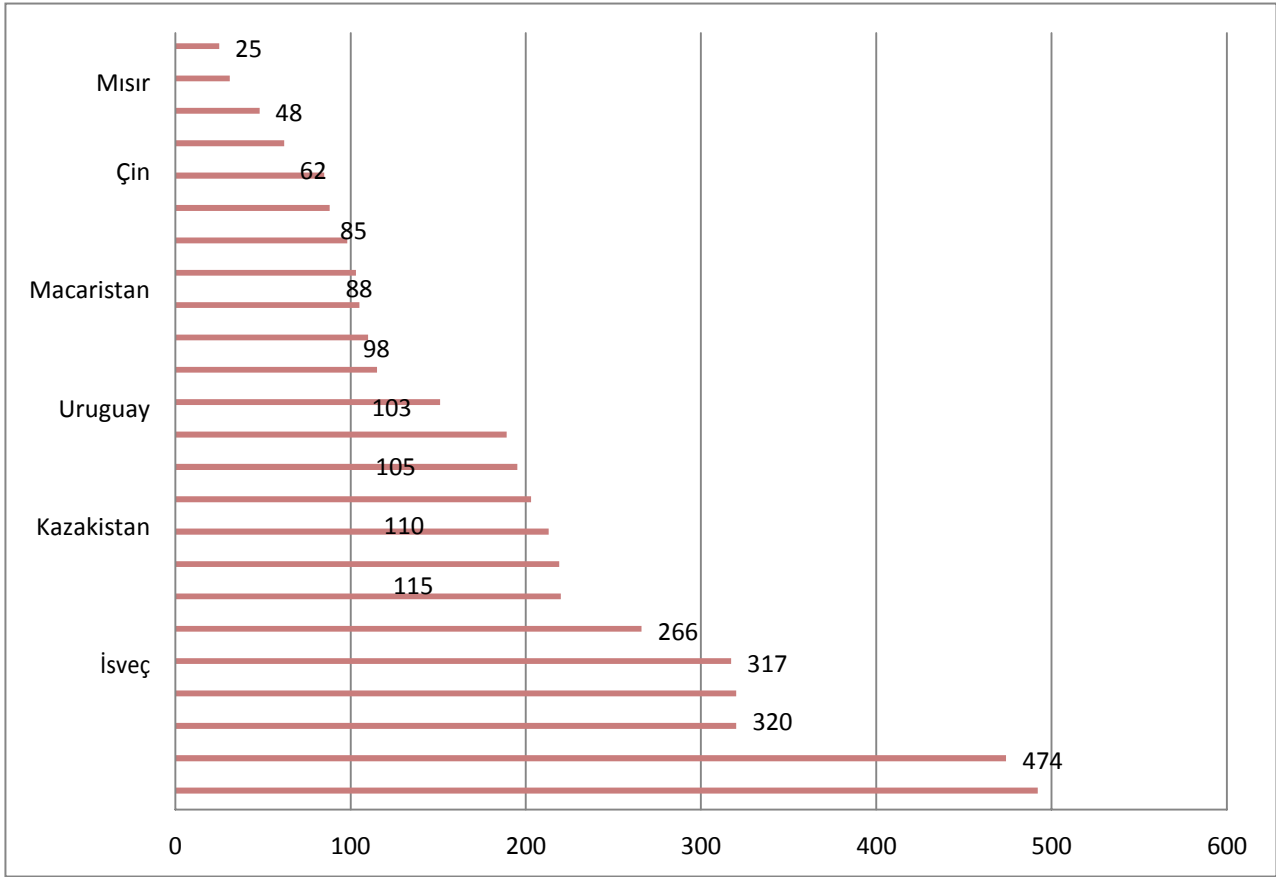
Hemodialysis package services in Portugal and Argentina also include the erythropoietin and vascular access.

The erythropoietin has been additionally included in hemodialysis package services in Poland, Lithuania, Hungary and Portugal.

Table2 : The contents of Hemodialysis package by countries

Countries	Medical consumables	Doctor fee	Laboratory	Erythropoietin	Vascular access.
Sweden	+	+	+		
France	+	+	+		
Italy	+	+	+		
Australia	+	+	+		
Portugal	+	+	+	+	+
Germany	+	+	+		
Catalonia	+	+	+		
Spain	+	+	+		+
Valencia	+	+	+		
UK	+	+	-		
Poland	+	+	+	+	
Uruguay	+	+	+		
Lithuania	+	+	+	+	
Hungary	+	+	+	+	
Argentina	+	+	+	+	+
Turkey	+	+	+		

In order to bring under control the increasing costs of hemodialysis patients in countries like the USA, UK, Germany and Spain, Quality-based payment plans are being developed. With this Quality-based payment plans for Hemodialysis, it is aimed to reduce drug use, morbidity and mortality rates and to contribute to the budget while reducing annual patient mortality rates, improving the life quality of patients and developing patient follow-up.



Graphic1: The price of Hemodialysis session in the World (2016)

## 5. DEBATE

Reimbursement models for Hemodialysis in the world are generally priced as a package. However, the contents of the package vary a lot between countries. (Table2) This creates open points in a one-to-one comparison.

In addition to the package relating to the reimbursement for dialysis, there is also a possibility of comparison in terms of medicine when dialysis quality systems are applied. However, the number of countries applying dialysis quality system is quite limited.

Hemodialysis consumables are imported materials for Turkey and for many countries. Their payment is made in Euros. However, dialysis prices are offered in Turkish Lira which is constantly changing depending on the inflation and foreign exchange rates in the country. In this case, there are also open points in the price comparisons of dialysis in Euro.

## 6. CONCLUSION

The reimbursement system for Hemodialysis is included in the package in Turkey. But the package doesn't include vascular access and drugs used in hemodialysis.

When looking at prices of hemodialysis in Euro (Graphic 1), it is seen that it's one of the lowest prices in the world.

In conclusion, for a better management of hemodialysis in Turkey, it's first necessary to bring the prices of hemodialysis session closer to the prices applied in European countries, to increase the medical quality by applying hemodialysis quality systems which will favor the decrease of mortality and morbidity of the patients in the medium and long-term.

## 7. RESOURCES

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