

# A Suicide Attempt in a Renal Transplant Patient with Mycophenolate Sodium

## *Böbrek Nakilli Hastada Mikofenolat Sodyum ile İntihar Girişimi*

### ABSTRACT

Solid organ transplant patients have higher suicide rates compared to the general population. It is suggested that the major factor contributing to this is to be on multiple immunosuppressive drugs, with some of these drugs directly or as a side effect potentially affecting the neuropsychiatric system. Mycophenolate sodium (MPS) is an immunosuppressive drug used in transplantation and is considered as a relatively safe, non-nephrotoxic agent with relatively few side effects. Common side effects are related to gastrointestinal (nausea, vomiting and diarrhea) and haemopoietic system (neutropenia and mild anemia). However, data on drug overdose and toxicity is limited. In this paper, we report successful management and outcome of renal transplant patient who had committed suicide by ingesting MPS.

**KEY WORDS:** Renal transplantation, Mycophenolate sodium, Immunosuppressive drugs, Suicide, Drug overdose

### ÖZ

Solid organ nakilli hastalar genel popülasyondan daha yüksek intihar oranına sahiptir. Bu durum çoklu immünespresif ilaç kullanımı ve bu ilaçların nöropsikiyatrik sistem üzerine direkt etkileri ya da yan etkileri ile açıklanmaktadır. Mikofenolat sodyum (MPS) organ naklinde kullanılan güvenilir, nefrotoksitesisi olmayan ve az yan etkiye sahip bir ilaçtır. Yaygın yan etkileri gastrointestinal sistem (bulantı, kusma ve ishal) ve hemopoetik sistem (nötropeni, hafif anemi) ile ilişkilidir. Ancak yüksek doz alım ve toksitesisi ilgili veriler sınırlıdır. Biz bu yazıda, MPS ile intihar girişiminde bulunan böbrek nakilli bir olgunun tedavi ve takibini sunuyoruz.

**ANAHTAR SÖZCÜKLER:** Böbrek nakli, Mikofenolat sodyum, İmmünespresif ilaçlar, İntihar, Aşırı doz ilaç alımı

### INTRODUCTION

Solid organ transplant patients have higher suicide rates compared to the general population (15.7 vs. 9.0 per 100,000 person-years) (1). The higher suicidal risk associated with end stage renal disease continuous to be a problem and is highest in the post transplant period. It is suggested that the major factor contributing to this is to be on multiple immunosuppressive drugs, with some of these drugs directly or as a side effect potentially affecting the neuropsychiatric system. To be on a continuous risk of organ rejection and frequent follow-up are also psychological traumata and are associated with tendency for suicidal ideas, especially in younger

patients. However data regarding suicide after transplantation is scarce.

Mycophenolate is an immunosuppressive drug that is being used extensively in transplant medicine after its approval by FDA in 1995. It is available as two formulations: mycophenolate mofetil (MMF) and mycophenolate sodium (MPS), both of which are pro-drugs that are metabolized to mycophenolic acid. It selectively inhibits inosine monophosphate dehydrogenase reversibly in lymphocytes and prevents the proliferation of T and B lymphocytes (2). It is considered as a relatively safe, non-nephrotoxic agent with relatively few side effects (2). Common

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side effects are related to the gastrointestinal (nausea, vomiting and diarrhea) and haemopoietic system (neutropenia and mild anemia). Data on drug overdose and toxicity is limited.

In this paper, we report successful management and outcome of renal transplant patient who committed suicide by ingesting MPS.

### CASE

A 28 year old female was admitted to emergency room with a history of taking 40 MPS (360 mg; total dose 14.4 grams) and 30 prednisolone (5 mg; total dose 150 mg) pills for suicidal purposes. Initial physical examination revealed that she was conscious, oriented, with a blood pressure of 110/90 mmHg, pulse 78 beats/minute and body temperature 36.5°C. She had sinus rhythm on her electrocardiogram. No pathological findings were observed on further physical examination except a surgical incision scar of transplant kidney surgery.

Her anamnesis revealed a renal transplant from her father in 2006. Her maintenance immunosuppression consisted of MPS, prednisolone and rapamycin. She had no acute rejection attacks and no history of psychiatric problems. Her last serum urea level was 34 mg/dl, creatinine 1.1 mg/dl.

After initial control of vitality, gastric charcoal decontamination was performed and she was hospitalized for further follow-up. Her white blood cell count was 10800/mm<sup>3</sup>, platelets 291000/mm<sup>3</sup>, hemoglobin 12.3 g/dl, blood glucose 122 mg/dl, urea 37.1 mg/dl, creatinine 1.3 mg/dl, alanine transferase 14 IU/L, aspartate transferase 23 IU/L, serum sodium 138 mmol/L and potassium 3.65 mmol/L. Her coagulation parameters were normal (PT: 14 s, INR: 1.14).

Her daily hematological and biochemical control along with clinical examination were normal. Only 0.9% NaCl at an infusion rate of 100 ml/hour was prescribed along with discontinuation of all immunosuppressive drugs. During hospitalization prednisolone, rapamycin and MPS were re-initiated.

She was discharged successfully after 72 hours without any complications occurring during follow-up. Just after discharge, she was prescribed sertraline for anxiety disorder and major depression by her psychiatrist. She was scheduled a second outpatient visit on day 14. At the time of this visit, her arterial blood pressure, pulse rate and body temperature were normal. Her white blood cell count was 8100/mm<sup>3</sup>, platelet 273000/mm<sup>3</sup>, hemoglobin 10.3 g/dl, blood glucose 84 mg/dl, urea 44 mg/dl, creatinine 1.2 mg/dl, alanine transferase 18 IU/L, aspartate transferase 20 IU/L, serum sodium 143 mmol/L and potassium was 3.65 mmol/L. Her coagulation parameters and electrocardiogram were normal. She continued sertraline for 4 months after the suicide attempt.

### DISCUSSION

After its introduction to the market and approval by FDA at a dose of 1 or 1.5 grams twice a day, mycophenolate formulations

have increasingly replaced azothiopurine and been extensively used in renal transplantation as an immunosuppressive agent. It is also widely utilized in other systemic diseases such as lupus nephritis. Almost all studies in the literature have reported gastrointestinal symptoms (up to 45%) as the major adverse side effect at doses within the therapeutic range. (3). However the consequences and the management of mycophenolate overdose is not well-defined. Considering that renal transplant patients have higher suicidal rates compared to the general population, it is of importance that the immunosuppressive drugs may be a tool for suicide. Therefore, management of the potential drugs used in transplantation shall be well-defined.

There are only a few case reports which have reported the outcomes of formulations of mycophenolate overdose higher than 10 grams. Bebart et al. have reported no adverse affects in a 24 year old female patient with lupus nephritis who took 10 grams of MMF (4). At a higher dose, Wu et al reported only a non-life threatening leukopenia in a patient with 25 grams of MMF (5). However, both these case reports have reported the outcomes of the MMF formulation of mycophenolate, which differs in various clinical effects from MPS (6, 7).

In our case, we did not observe any complications related to MPS overdose. Charcoal decontamination, hydration and modification of immunosuppression dose in case of drug overdose were effective approaches to control the potential outcomes if there were to be any. However, in the light of the previous reports, it seems that neither MMF nor MPS lead to any serious adverse events if taken as an overdose for suicide.

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