

# Posterior Reversible Encephalopathy Syndrome due to Tacrolimus

Khawaja Owais Omar MD, Rabia Anees MD, Robert Bacallao MD, Amna Anees MD

## INTRODUCTION

- Tacrolimus induced Posterior Reversible Encephalopathy Syndrome (PRES) may be seen in 0.5-5 % solid organ transplant recipients (1).
- Patients may present with visual disturbances, altered mental status, seizures, and headache (1,2).
- PRES can develop even when Tacrolimus levels are therapeutic.
- Other risk factors that may increase the risk of PRES include hypertension, changes in vascular permeability and renal failure (2).

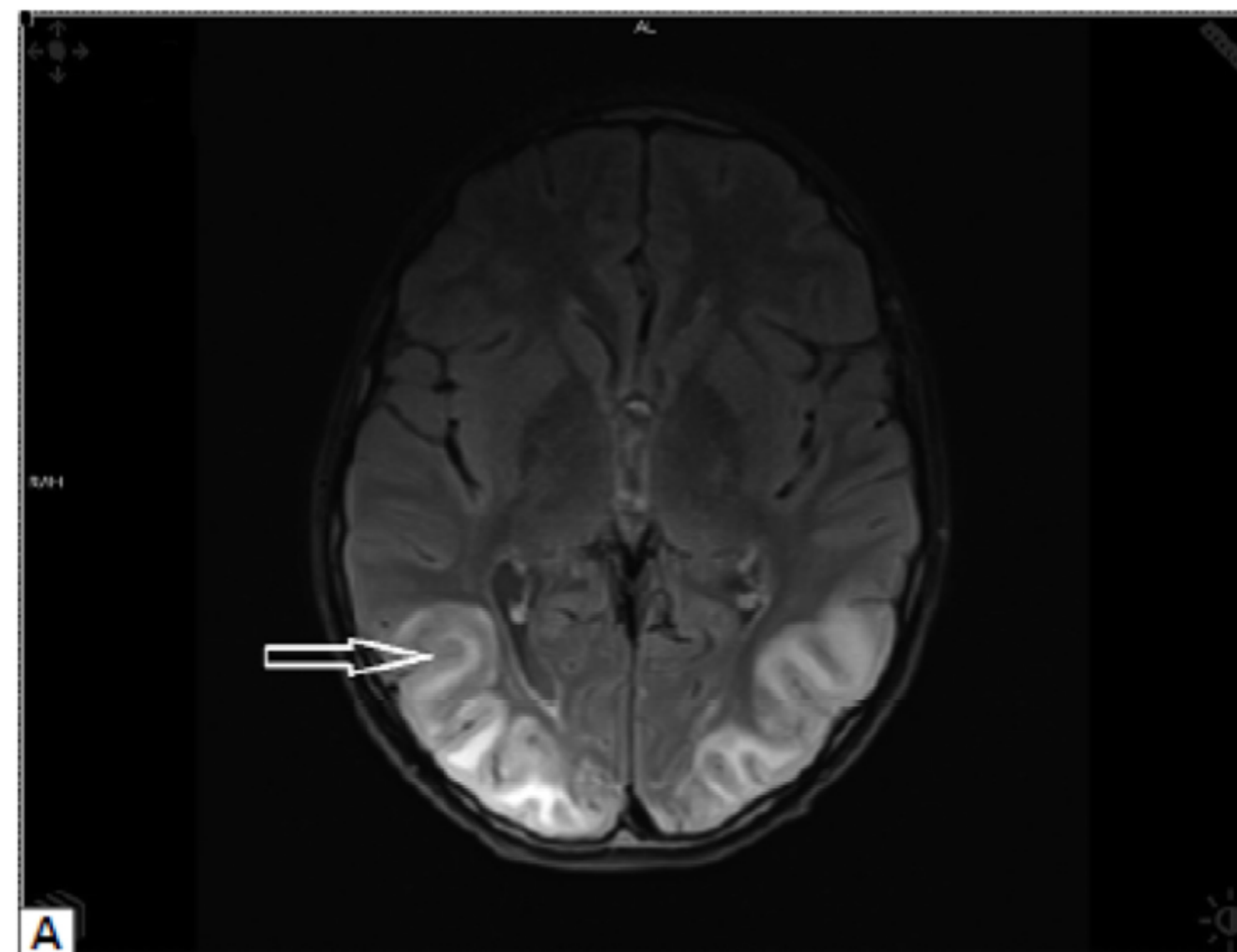
## CASE

- 64-year-old female with past medical history of diabetes mellitus type 2 presented to the emergency department with progressive confusion and mild headaches. She denied any fever or chills and review of systems was otherwise unremarkable.
- 6 months ago she underwent renal transplant with an uneventful post-operative course and had no events of infection or rejection.
- She was started on an immunosuppression regimen composed of prednisone, myfortic and tacrolimus and bactrim and valganciclovir was given for prophylaxis for opportunistic infections post-transplant.
- On Physical exam patient was oriented to self only.
- Vitals- Afebrile, Blood pressure 170/94, Pulse 130, Respiration 14/min.
- Lung and cardiac exam were within normal limits and neck was supple. Neurological exam was non focal.

## DIAGNOSIS AND TREATMENT

- She suffered from a single episode of tonic clonic seizure for which she was given anti epileptics.
- She underwent MRI which showed symmetrical white matter edema in parietooccipital region suggestive of Posterior reversible encephalopathy syndrome (PRES).
- Soon after diagnosis labetalol was started to treat hypertension and Tacrolimus dose was decreased.
- Shortly after, patients mental status improved.

LABS	RESULTS
CBC	Normal
LFTs	Normal
Ammonia	Normal
Baseline Cr	1.6
Current Cr	2.1
Tacrolimus levels	11ng/ml



## DISCUSSION

- PRES can occur either due to severe hypertension causing vasogenic edema or endothelial dysfunction leading to cytotoxic ischemia and subsequent cerebral edema(1).
- Tacrolimus may cause PRES by causing hypertension due to its vasoconstrictive properties or by increasing the permeability of blood brain barrier or by increasing the distribution of drug in brain by inhibiting P-glycoprotein (2).
- Diffusion weighted MRI can help to differentiate between vasogenic and cytotoxic edema.
- Management of PRES includes control of blood pressure and cessation or reduction in the dose of tacrolimus (2).

## CONCLUSION

- Prognosis is generally good and PRES is reversible if addressed timely.
- Delays in management may result in progression of vasogenic edema to cytotoxic edema ensuing in a permanent neurological damage (2).
- It is important to consider PRES in differentials of a post transplant patient presenting with neurological symptoms in order to diagnose and treat it in a timely manner.

## REFERENCES

- 1) Tacrolimus Associated Posterior Reversible Encephalopathy Syndrome/PMID: 24678391
- 2) Tacrolimus-induced encephalopathy post kidney transplantation/PMID: 21359060