# "REVISING THE ROLE OF THERAPEUTIC PLASMA EXCHANGE IN PREGNANCY-ASSOCIATED TMA: A CASE SERIES"

Dr Sathish S, Dr Saptarshi Mandal[1], Dr Archana Bajpayee[1] , Dr Anubhav Gupta[1], Dr Siddharth Mittal[1],Dr Rajesh Jhorawat[2]

[1]Dept. of Transfusion Medicine, [2]Dept. of Nephrology, All India Institute of Medical Sciences, Jodhpur

ePI30

**Introduction**: Pregnancy and postpartum periods pose high-risk of developing thrombotic microangiopathies (TMA). However, the management of pregnancy-associated TMA remains ill-defined. We present a post-partum TMA case series of 6 cases that highlights the importance of early recognition and prompt intervention for pregnancy-related TMA. All these cases presented mainly with isolated Acute Kidney Injury AKI, and underwent Therapeutic Plasma Exchange (TPE) which resulted in favourable maternal & fetal outcome in majority. Although therapeutic plasma exchange (TPE) has been successful in patients with TMA in the past, American Society for Apheresis guidelines 2023 lists this indication (TMA, Pregnancy Associated) under category III with grade 2C recommendation, which suggests that either the evidence is soft, i.e. likely to change with time, or an umbrella category likely to split up, as more evidence accrues. Our case series is likely to contribute evidence in favour of doing the procedure for such case/subtypes.

**Objectives:** To study the effect of TPE among postpartum TMA with Acute Kidney Injury

| | Case 1 | Case 2 | Case 3 | Case 4 | Case 5 | Case 6 |
|---|---|---|---|---|---|---|
| **Age** | 25 | 24 | 35 | 28 | 25 | 30 |
| **Gravida** | Primigravida | Primigravida | Multigravida | Primigravida | Primigravida | Primigravida |
| **Mode of Delivery** | NVD | LSCS | Abortion | LSCS | LSCS | NVD |
| **Status of Baby** | Alive | Alive | - | Stillbirth | Alive | Alive |
| **Antenatal** | Gestational DM | HTN | HTN | HTN | Uneventful | HTN |
| **Onset of clinical symptoms** | Day 2 | Day 3 | Day 1 | Day 1 | Day 2 | Day 4 |
| **Time between onset and PE** | 4 days | 3 days | 2 days | 1 day | 5 days | 4 days |
| **Haemodialysis** | 3 | 4 | 2 | 2 | 3 | 3 |
| **Length of Hospital Stay** | 12 | | 31 | | 16 | 14 |

**Methodology:** The Patients included in the series are Six patients admitted to our institute from September 2023 to September 2024 presenting with AKI and diagnosed with postpartum TMA, who underwent at least one cycle of therapeutic plasma exchange. These patients were assessed for laboratory parameters and clinical outcome.

| Results | Hb[g/dl] | | Platelet Count[$10^3$/$mm^3$] | | LDH | | Peripheral Blood Fim Schistocytes[%] | | Urine Output | | Output |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre-PE | Post-PE | Pre-PE | Post-PE | Pre-PE | Post-PE | Pre-PE | Post-PE | Pre-PE | Post-PE | Follow-up |
| Case 1 | 8.8 | 9.0 | 44 | 130 | 2342 | 377 | 5 | 1 | 0 | 400 | Dialysis independent |
| Case 2 | 8.7 | 7.9 | 43 | 100 | 3110 | 310 | 4 | 0 | 15 | 300 | Dialysis independent |
| Case 3 | 8.0 | 7.0 | 73 | 99 | 3990 | 2190 | 5 | 3 | 25 | 90 | Dialysis dependent |
| Case 4 | 8.2 | 7.8 | 83 | 153 | 1939 | 690 | 6 | 1 | 25 | 500 | Dialysis independent |
| Case 5 | 7.7 | 8.2 | 75 | 134 | 2190 | 274 | 7 | 2 | 0 | 450 | Dialysis independent |
| Case 6 | 6.9 | 7.8 | 77 | 182 | 1437 | 246 | 7 | 3 | 0 | 340 | Dialysis independent |

**Result:** Six postpartum patients with AKI are included in this case series. Indication for TPE in all the cases were thrombotic microangiopathy (TMA). All received 2 to 5 sessions of TPE with 1.3-1.5 plasma volume removed on an average per cycle. The endpoint of TPE was a reduction in lactate dehydrogenase and an increase in platelet count. Five patients responded well on follow-up while one had acute cortical necrosis and remained dialysis-dependent. It has been noted in the previous studies too that a pregnancy or postpartum induced TMA cases was getting converted to chronic kidney disease and becoming dialysis dependent in the long run.

**Conclusion:** These case series highlighted the successful management of pregnancy-related TMA involving acute kidney injury with therapeutic plasma exchange (TPE). TPE may be a valuable adjunctive therapy in severe cases of postpartum AKI, and its utilization should be considered early in a multidisciplinary approach to ensure favourable maternal outcomes. Early recognition of TMA and prompt intervention with TPE in managing postpartum AKI to prevent irreversible renal damage and improve patient outcomes.