Section: Anaesthesia

Case Series

MANAGEMENT OF CHALLENGES DURING INDUCTION OF ANAESTHESIA IN RENAL TRANSPLANT RECIPIENTS –A CASE SERIES

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Abstract

Background: Renal transplantation has been safe and successful in various centres. Having done 88 cases of recipient, we would like to share our experience on problems encountered during induction of general anaesthesia in end stage renal disease in 24 cases since January 2022. **Materials and Methods:** The challenges encountered during induction of anaesthesia are hypertension, acute pulmonary oedema, stiff lung due to pleural and pericardial effusions, systolic and diastolic dysfunction of heart and pulmonary hypertension. Preoperative heparin free dialysis, propofol, atracurium, fentanyl, O2, Nitrous oxide, Isoflurane are routinely used and standardised for all recipients. Most of patients are anuric in spite of dialysis. Boluses of Diltiazem as a calcium channel blocker and Nitro glycerine were titrated to the needs of individual patients. **Result:** Preoperative echo on the day prior to surgery suggested degrees of systolic dysfunction as ejection fraction (35-50%), pulmonary hypertension as right ventricular systolic pressure (35-54 mm Hg), hypotension with decreased response to vasopressors suggestive of diastolic dysfunction, anaemia (7.5-9.5 g%). **Conclusion:** This case series is presented to highlight that a patient with such severe cardio- pulmonary derangements need renal transplantation at the earliest. Vigilant, diligent, active and aggressive management and meticulous monitoring contributed to successful outcome in the above cases.

CASE 1

History

35 year old female with ESRD on hemodialysis for 7 months, dry weight- 52 kg, k/c/o SHTN for 1 year on T. Nifedipine 10 mg BD &T.Clonidine 100 mcg ODwith fluid allowance of 500 ml /24 hrs.

Investigations: Hb- 8g%, Bld urea-70 mg/dl, Sr. creatinine- 4.5 mg/dl, serum electrolytes (Na+/K+)- 145/ 4.8, CXR – B/L mild pleural effusion, ECHO: EF- 40% RVSP-52 mmHg(Pulmonary hypertension).[1-3]

Pre op vitals: HR-78/min; BP- 160/100 mmHg; SPO2- 98%;CVS – S1 S2(+);Lungs clear.

- Following induction tightness in bag was noted and Sudden fall in SPO2 to 85% noted.
- Intubated immediately and noticed pink frothy secretionsin Et tube.
- Patient was ventilated with 100% O2with PEEP of 10 cm H2O.
- Pink frothy secretions decreased and saturation improved to 95%. PEEP titrated to 7 cmH2O. Once oxygenation improved, the surgery was started.
- Good graft function ensured adequate urine output and oxygenation was maintained. Patient was electively ventilated overnight and extubated next day morning.

Discussion

In the absence of adequate glomerular andtubular function, diuretics will not be helpful.

Intraoperative pulmonary edema isbest managed by high peep.[1,2]

CASE 2

History

50 years old male with ESRD on hemodialysis for 1 year, Anuric for 3 months, dry weight 60 kg, k/c/o SHTN for 5 years on T.Nifedipine 10 mg BD , no H/o seizures , with fluid allowance of 1 litre /24 hrs.

Investigations

Hb- 7.8g%, Bld urea-90 mg/dl , Sr. creatinine- 5.2 mg/dl, serum electrolytes (Na+/K+)- 140/ 4.0,CXR

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– B/L mild pleural effusion , ECHO : EF- 50%, RVSP-50mmHg

Pre op vitals: HR-86/min BP- 170/100 mmHg SPO2- 98% CVS – S1 S2(+). Lungs clear.

During induction, patient developed seizure (tonic clonic in nature). Immediatelyparalysed and intubated. Surgery was started. Intravenous Levitracetam 500 mg was given. There was no further episode of seizure.

Discussion

Development of seizures in ESRD could be due to Uraemia, Dyselectrolytemia, Immunosuppressants, Dialysis disequilibrium syndrome.[4,5]

As renal transplantation improves patient survival,paralysing and securing definitive airway by intubation helped in proceeding with the surgery.

CASE 3

History

40 years old male with ESRD on hemodialysis for 8 months, Anuric for 5 months, dry weight 45 kg, K/c/oSHTN for 2 years on T. Nifedipine 10 mg BD, posted for renal transplantation with fluid allowance of 500 ml/24 hrs.

Investigations

Hb- 7 g%,Bld urea – 90 mg/dl, Sr. creatinine- 5 mg/dl, serum electrolytes (Na+/K+) -138/ 5.2, CXR- B/L Perihilar opacities+, ECHO: EF 56% RVSP- 38 mmHg

Pre op vitals

HR-70/min BP – 160/100 mmHg SPO2- 97% CVS – S1S2 (+) RS- B/L Diminised breath sounds(+).

Following intubation, bilateral chest movements and breath sounds were diminished. ETCO2 tracing confirmed tracheal intubation. Saturation was found to be gradually decreased to 90%.100% oxygen given and PEEP was gradually increased from 4 to 7 cm H2O. Saturation was improved.

Discussion

Non complaint lung could be due to uremia induced increased permeability of pulmonary alveolo-capillary interfaces, leading to interstitial and intra alveolar edema, alveolar hemorrhage and atelectasis.[6,7]

Table 1:

Cases	EF%	RVSP (mmHg)	Hb(g%)	Complications
1	40	58	8	Acute pulmonaryoedema
2	40	50	8	Seizures
3	50	35	7	Non compliant lung

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