



USG GUIDED FEMORAL & LATERAL CUTANEOUS NERVE BLOCK AS SAVIOUR- ANAESTHETIC MANAGEMENT OF PATIENT OF CKD-ESRD WITH DIFFICULT AIRWAY & COAGULOPATHY POSTED FOR NOVEL PROSTHETIC FEMORO-FEMORAL AV FISTULA.

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ABSTRACT

Anaesthetic management for creation of a novel prosthetic femoro-femoral arteriovenous fistula (AV) in 65 years old male patient k/c/o hypertension with CKD (Stage V, [ESRD] haemodialysis dependent for last 1.5 years with difficult airway and deranged coagulation profile. AV fistula was initially created in upper limb which blocked 6 weeks back. Subsequently dialysis was done by dialysis catheter as temporary method and femoro-femoral AV fistula creation using prosthetic graft was planned due to its early maturation time (7 days). Central neuraxial blocks were contraindicated because of deranged coagulation profile. Patient is also high risk for GA i/v/o ESRD and difficult airway. Therefore we planned for RA in the form of USG guided Femoral Nerve Block and Lateral Cutaneous Nerve (LCN) of thigh block. Femoral Nerve Block (FNB) and Lateral Cutaneous Nerve block (LCN) was performed under ultrasound guidance in real time using 20 and 10ml of 0.25% Bupivacaine respectively. After establishing block effect, surgery was performed solely under block with stable peri-operative course.

KEYWORDS : Femoral & Lateral Cutaneous Nerve Block, AV Fistula, CKD-ESRD

INTRODUCTION

- End-stage renal disease (ESRD) creates a considerable health burden worldwide.
- Despite the increasing number of kidney transplants and a plateau in the incidence of patients starting renal replacement therapy (RRT), the prevalence of patients undergoing dialysis has been steadily increasing.
- Renal disease significantly increases mortality risk, in addition to the independent risk of disease.

Decision to offer dialysis

- Chronic kidney disease (CKD) describes abnormal kidney function and/or structure, and its classification has evolved, being most recently described by the updated NICE guidelines on CKD.
- NICE guidelines describes grades of CKD using both GFR and albumin: creatinine ratio (ACR).

Haemodialysis

- Haemodialysis requires wide bore vascular access to allow for the large volumes exchanged.
- If dialysis is urgently required, this can be achieved with a central venous catheter.
- In less acute situations, such as bridging between peritoneal and haemodialysis, or in the event of graft failure, tunnelled lines can be placed.
- Due to the risks of indwelling lines, particularly infection and thrombosis, most patients will progress to some sort of permanent access. This will be either an arteriovenous fistula or a graft.

Classification of CKD using GFR and ACR categories (NICE)¹

Case report

- A 65 years old male patient ASA- III, ESRD- on CRRT posted for prosthetic femoro-femoral a-v fistula creation.
- Diagnosed with CKD 1.5 years back, on twice weekly RRT since then.
- K/c/o hypertension for last 7 years, taking Chlorthalidone 12.5 mg OD, Telmisartan 40mg OD regularly for last 5 years.
- No h/o any other chronic medical illness
- H/o open cholecystectomy 25 years back
- No relevant family history
- Non-smoker, non-Alcoholic

GPE

- Weight: 65kg, Height: 154cm, Pallor ⁽⁺⁾, Icterus ⁽⁻⁾, Cyanosis ⁽⁻⁾
⁽⁻⁾Clubbing ⁽⁻⁾, JVP ^(NR), LAD ⁽⁻⁾, Oedema ⁽⁺⁾

Airways examination

- Mouth Opening: 3 fingers, MPS: IV, TMD: 5.5 cm, Neck movements: adequate

Haemogram

- Haemoglobin: 9.0 gm, TLC: 6900, Platelet counts: 2,25,000

COAGULATION PROFILE

- PT: 22, INR: 1.8

Biochemistry

- RBS: 91 mg/dl, Creatinine: 5.1mg/dl, Urea: 168mg/dl, Sodium: 140 mmol/L, Potassium: 5.0 mmol/L, Total bilirubin: 0.6mg/dl, Direct bilirubin: 0.2mg/dl, SGOT: 32 IU/L, SGPT: 48 IU/L, Total protein: 5.9 gm/dl, Albumin: 3.1 gm/dl
- CXR: Cardiomegaly
- ECG: RBBB

URINE ANALYSIS

- Sugar: nil, Albumin: 182mg/dl

CHALLENGES

- Difficult airways
- Hypertension

GFR and ACR categories and risk of adverse outcomes			ACR categories (mg/mmol), description and range		
GFR categories (ml min ⁻¹ (1.73 m ²) ⁻¹), description and range	GFR	GFR description	<3	3-30	>30
			Normal to mildly increased	Moderately increased	Severely increased
			A1	A2	A3
≥90 Normal and high	G1	No CKD in the absence of markers of kidney damage			
60-89 Mild reduction related to normal range for a young adult	G2				
45-59 Mild-moderate reduction	G3a ¹				
30-44 Moderate-severe reduction	G3b				
15-29 Severe reduction	G4				
<15 Kidney failure	G5				

→ increasing risk

↑ increasing risk

- Deranged coagulation profile
- Strict electrolyte control

PLAN

Regional anaesthesia in the form of femoral nerve block and lateral cutaneous nerve of thigh block.

- Patient received in operation room, positioned in supine position and explained about procedure again.
- Standard monitoring(NIBP, ECG, SPO2) attached with NIBP: 158/98, HR: 68 beats/min and SpO2: 97 %.
- PAM: Inj. Fentanyl 60 micrograms i/v
- Area cleaned and draped.
- Under all aseptic precautions, ultrasound guided Femoral Nerve block was performed using 20 ml of 0.25% bupivacaine and Lateral Cutaneous Nerve block was performed using 10 ml of 0.25% bupivacaine with 22 gauge needle.
- After establishing effect of block, surgery was performed solely under block with stable peri-operative course.
- Total duration: 1 hour 10 min.

DISCUSSION

- All dialysis patients are taken to be as high risk for any invasive procedure.
- In a patient of ESRD with abnormal coagulation, neither general anaesthesia nor central neuraxial block is a good option.
- Regional Anaesthesia is the preferred technique over Local Anaesthesia in creation of A-V fistula creation in patients of CKD.²
- It reduces risk of exposure of patient to the anesthetics drugs.
- In addition Regional blocks also cater to the analgesia of the patient for a longer duration, thus satisfying the role of an anaesthesiologist.

CONCLUSION

Hence we concluded that femoral nerve block can be used safely and effectively in patients where GA and central neuraxial block can not be given safely.

REFERENCES

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