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Systemic Lupus Erythematosus In Pregnancy- The Right Anaesthetic Choice?

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ABSTRACT

Systemic lupus erythematosus is a multisystem, chronic inflammatory disease characterized by autoantibodies directed against nuclear antigen. Parturient with SLE require a multidisciplinary approach, taking into account the heterogeneous presentation of the disease, severity of organ involvement and potential drug interactions. Owing to considerable overlap between features of SLE, pre-eclampsia and physiological changes of pregnancy, caution must be exercised while interpreting the clinical presentation and blood work-up. We describe the successful conduct of anaesthesia in a parturient at twenty six weeks of gestation with ANA-positive SLE with lupus nephritis, vasculitis, chronic DVT, hypertension, accompanied by morbid obesity for emergency lower segment caesarean section.

Keywords: SLE, lupus, parturient, pregnancy, spinal anaesthesia

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INTRODUCTION

Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that can affect any organ system and is characterized by presence of auto-antibodies against nuclear antigens. It is commonly seen in young women of child- bearing age and complicates pregnancy. [1] A thorough pre-anaesthetic evaluation and individualized plan for management must be made based on the degree of involvement of organ systems.

Case report

A twenty-nine year old primigravida at twenty-six weeks with twin gestation, anti-nuclear antibody positive SLE was scheduled for emergency lower segment caesarean section (LSCS) in view of antepartum haemorrhage. She had secondary anti-phosopholipid antibody syndrome (APLA) with anti-cardiolipin IgG antibodies positive. Treatment included prednisolone, azathioprine and hydroxychloroquine. SLE-induced end organ damage was evident with multiple lacunar infarcts secondary to vasculitis on MRI, biopsy-proven thrombotic microangiopathy and Grade 4 SLE retinopathy on fundoscopy. Her other comorbidities included chronic hypertension, on treatment with labetolol, hydralazine, nifedipine and prazosin, and deep vein thrombosis (DVT)on warfarin, switched over to low molecular weight heparin (LMWH) for better fetal outcome.

Pre-operative evaluation revealed persistent high blood pressure (BP) recordings of >180/100mmHg, BMI of 41 kg/m^2, generalized pitting oedema, challenging peripheral venous access and non-palpable spine. Large oedematous tongue, double chin, short neck, occipital pad of fat, large breasts and modified Mallampati class 4 pointed towards an anticipated difficult airway. Investigations revealed a normal coagulation profile and acute kidney injury. Echocardiography showed 62% ejection fraction, oedematousmitral leaflets, valve prolapse, moderate mitral regurgitation and fair left ventricular systolic function. Trans-vaginal ultrasound showed suspected abruption.

We planned for a sub-arachnoid block after obtaining informed consent and premedicating with intravenous (IV) metoclopramide, ranitidine and hydrocortisone. Standard ASA monitors were connected, 18G IV cannula and radial arterial line were secured under ultrasound guidance. ECG showed heart rate of 42 beats per minute with multiple frequent ventricular ectopics, regularized with IV atropine. A body warmer was used to maintain normothermia and avoid Raynaud's phenomenon. The patient was put in sitting position and under aseptic precautions, lumbar puncture was done at L3-L4 interspace using a 25G Quincke-Babcock spinal needle and 1.6 mL of 0.5% hyperbaric bupivacaine with 20 mcg preservative-free fentanyl was injected. The patient was placed in supine position with an obstetric wedge under right lumbar region. A sensory blockade was achieved at T6 dermatome. Intra-operatively, she maintained stable haemodynamics, a urine output of 5 mL and blood loss of 500 mL over 90 minutes.

Post-operatively, the patient received DVT prophylaxis, was started on furosemide and anti-hyperkalemic measures, which significantly improved the urine output. She was discharged after a week with continuation of steroids, antihypertensives and immunosuppressants.

DISCUSSION

The diagnosis of SLE is based on the Systemic Lupus International Collaboration Critics classification criteria. [2] The classic presentation of a triad of fever, joint pain and rash in a woman of childbearing age should prompt investigation into the diagnosis of SLE. [3] These patients are at a higher risk for spontaneous abortions, preeclampsia, eclampsia, intra-uterine growth restriction and serious foetal consequences including neonatal lupus, preterm birth and foetal death. [4, 5] However, recognition of the disease activity and flare in pregnancy can be confounded by physiological changes of pregnancy. Severe thrombocytopenia, generalized oedema and proteinuria seen in preeclampsia, further clouds the clinical scenario. Thus, a thorough pre-anaesthetic check-up, taking into account the above is prudent to determine the degree of systemic involvement.

One of the major anaesthetic concerns in SLE is airway involvement. Manifestations range from epiglottitis, severe laryngeal oedema, acute airway obstruction to vocal cord paralysis secondary to nerve

vasculitis. [6, 7] Bleeding due to traumatic laryngoscopy and intubation can be catastrophic in these patients. Gastro-oesophageal acid reflux disease (GERD), seen commonly in parturients, exacerbates the situation. [8] In addition, drugs used in SLE, such as aspirin and corticosteroids, could further aggravate GERD, putting these patients at a higher risk of aspiration during general anaesthesia (GA). [9] Polypharmacy in SLE and lupus nephritis causing impaired renal function limits the drugs that could be used for GA. It has been observed that drugs such as azathioprine, which our patient was receiving, decreases the action of non-depolarizing muscle relaxants and extends the effect of succinylcholine. [10, 11]

Considering the above, regional anaesthesia seems like an obvious choice in patients with SLE. However, the presence of thrombocytopenia, prothrombotic state usually treated with anticoagulants and dependant oedema obscuring anatomical landmarks, makes regional anaesthesia tricky. In addition, our patient also had lacunar infarcts, a suspicion of a threatened abruption, persistently high BP readings and sinus brady-arrhythmia. Hence, GA could also be a viable option. With so many puzzling factors complicating SLE in pregnancy, choosing the ideal anaesthetic technique is a dilemma.

Our choice of regional anaesthesia was justified by the following elements. Firstly, her morbid obesity and gross oedema of laryngeal structures cautioned us against airway manipulation. Secondly, though the patient was on anticoagulation, her platelet count and coagulation profile were within normal limits and she had not received LMWH in the past 12 hours. Despite the fact that she had lacunar infarcts, there were no signs of raised intracranial tension or active bleed. Jindal P et al in their case series of five parturients with SLE, concluded that in the absence of any contraindication, regional anaesthesia is the preferred choice for pregnant patients with SLE who present for LSCS. [9] Further, foetal outcome, in terms of need for intubation and APGAR scores, are better with regional anaesthesia. [12] The aforementioned aspects reinforced our decision to opt for a regional technique in our patient.

CONCLUSION

SLE in a parturient poses a constellation of hurdles and often there is no infallible anaesthetic plan. The threat of an anticipated difficult airway, renal dysfunction, polypharmacy and absence of bleeding diathesis, in our patient steered our reins towards regional anaesthesia. Ultimately, a comprehensive knowledge of the disease process, assessing the degree of organ dysfunction and a keen awareness of the interplay between pregnancy and SLE are the pillars on which the anaesthetic management must be tailored.

REFERENCES

[1] Gladman DD, Tandon A, Ibanez D, Urowitz MB. The effect of lupus nephritis on pregnancy outcome and fetal and maternal complications. J Rheumatol. 2010;37:754–758

[2] Petri M, Orbai A, Alarcón GS,Gordon C, Merrill JT, Fortin PR ,Bruce IN et al. Derivation and Validation of Systemic Lupus International Collaborating Clinics Classification Criteria for Systemic Lupus Erythematosus. Arthritis Rheum. 2012;64:2677–2686.

[3] Dubois EL, Tuffanelli DL. Clinical manifestations of systemic lupus erythematosus. Computer analysis of 520 cases. *JAMA*. 1964;190:104-11

[4] Madazli R, Bulut B, Erenel H, Gezer A, Guralp O. Systemic lupus erythematosus and pregnancy. *J ObstetGynaecol*. 2010;30:17-20

[5] Lateef A, Petri M. Systemic Lupus Erythematosus and pregnancy.Rheum Dis Clin North Am. 1994;20:87–118.

[6] Lee JH, Sung IY, Park JH, Roh JL. Recurrent laryngeal neuropathy in a systemic lupus erythematosus (SLE) patient. Am J Phys Med Rehabil 2008;87:68-70

[7] Narsimulu G. Bilateral vocal cord palsy as a manifestation of systemic lupus eryhtematosus. Lupus 2009;1:1-2

[8] Ni Mhuireachtaigh R, O'Gorman DA. Anesthesia in pregnant patients for non-obstetric surgery. J Clin Anesth 2006;18:60-6

[9] Jindal P, Kapoor R, Khurana G, Chaturvedi J. Anesthetic implications in systemic lupus erythematosus patients posted for cesarean section: A series of five cases. J ObstetAnaesthCrit Care 2013;3:97-100

[10] Blichfeldt-lauridsen L, Hansen BD.Anesthesia and myasthenia gravis. ActaAnaesthesiolScand 2012; 56: 17–22

[11] Gramstad L. Atracurium, vecuronium and pancuronium in end-stage renal failure: dose-response properties and interactions with azathioprine. Br J Anaesth 1987; 59:995-1003

[12] Algert CS, Bowen JR, Giles WB, Knoblanche GE, Lain SJ, Roberts CL. Regional block versus general anaesthesia for caesarean section and neonatal outcomes: a population-based study. BMC Medicine. 2009;7:20