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A CASE REPORT

DRUG MISHAP?

VASOPRESSIN INDUCED MORTALITY DURING LAPAROSCOPIC MYOMECTOMY

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ABSTRACT:

Advances in clinical therapeutics have resulted in major improvements in health for patients with many diseases, but these benefits have also been accompanied by increased risks. Though we take adequate precautions and use various strategies to prevent adverse drug effects, we still come across few reactions. We present a case report of such a drug mishap.

A 30-year aged nulligravida with primary infertility due to AUB(L) with corrected anaemia admitted in our hospital for conservative surgical management for myoma. She was anxious to conceive with no significant past,family,personal history. On examination bimanually it was a 12-14 weeks gravid uterus size. On USG 6.2 x 5.3 cm posterior myometrial fibroid noted. She was planned for laparoscopic myomectomy. Injecting vasopressin into the myoma with prior precautions , intra capsular dissection started. Alterations in blood pressure was noticed .Resuscitative measures started immediately and diagnosed as stress cardiomyopathy.Conversion to laparotomy to complete the surgery. Patient was stabilized on inotropes. Patient succumbed on postoperative day

Though vasopressin is used since late 1950s, when its concentration in blood increases it causes increased blood pressure followed by positive sympatho inhibitory reflex and decreased cardiac contractility and heart rate(may not be necessary)

KEY WORDS: vasopressin, Laparoscopic myomectomy, conservative surgical management of fibroid, vasopressin associated death. Histopathological examination(HPE)

CASE REPORT:

A 30 Year, Nulli gravida with primary infertility due to Abnormal uterine bleeding [AUB (L)] with corrected anaemiaWith Chief complaint menorrhagic cycles since 3years with severe dysmenorrhea and Anxious to conceive. There is no significant personal, past , family history., HerWeight – 47Kg ;Height – 153cm;BMI – 20.1 kg/m2;GC – Pallor present. On Bimanual examination: uterus corresponding to 12-14 weeks gravid size. A anterior wall fibroid of 5 X 6 cm felt occupying anterior and left lateral fornix. Movement of the cervix

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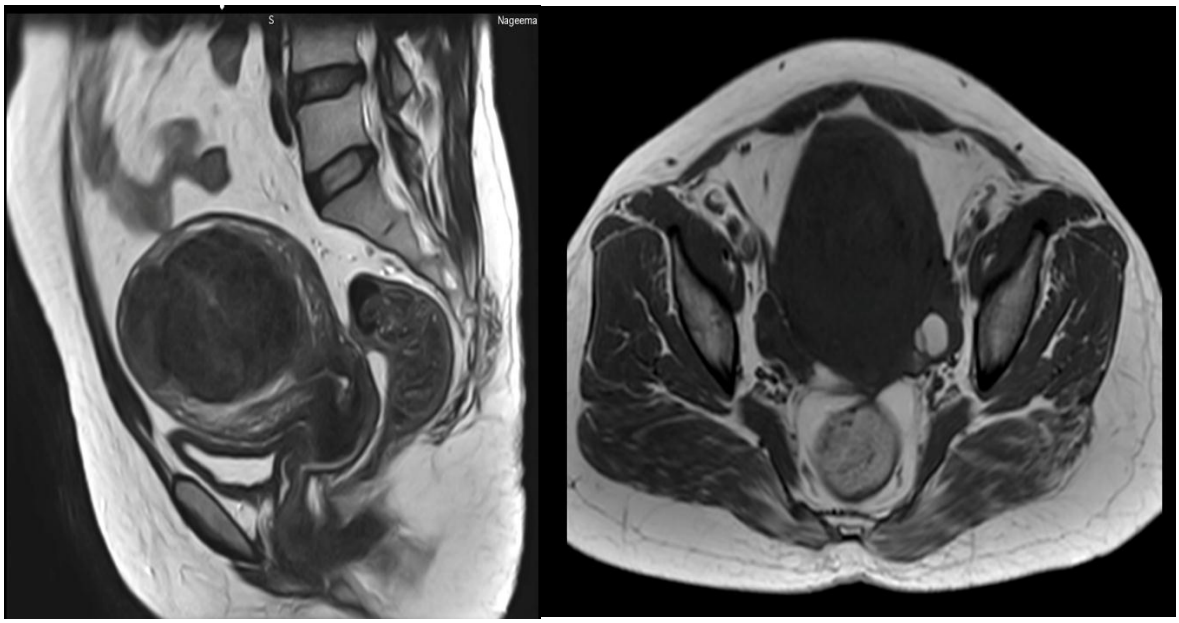
transmitted to mass.Both partners were evaluated for infertility . Initial investigations :Hb – 9.4g%,Ultrasound – Bulky uterus (10X6X7.2 cm) with posterior myometrial fibroid of 6.2X5.3 cm.Endometrial biopsy on HPE late secretory phase is noted.Pap smear is negative for intra epithelial lesions .Serum AMH -0.25ng/ml (normal : 3-5ng/ml).All other liver,renal,pulmonary, cardiac evaluation are with in normal limits. OnMRI:Uterus enlarged in size 12 x 7.7cm .Large posterior myometrial fibroid 7.2 x 5.5cm extending centrally into the submucosal region displacing the endometrial cavity anteriorly, inferiorly occupying most of the fundus and body posterior part



MRI IMAGES OF POSTERIOR WALL FIBROID

In view of leiomyoma and infertilityshe was advised conservative surgical management of leiomyoma .her haemoglobin was improved with parenteral iron sucrose infusion preoperative Hb% was 11.7g%she was taken up for LAPAROSCOPIC MYOMECTOMY 2 months after the initial visit with preoperative evaluation under normal limits .

Patient placed in lithotomy position .Under aseptic precaution vaginally uterine manipulator was placed . veress needle inserted followed by primary port10mm kept supra umbilically, pneumoperitoneum created ,3 accessory port 2 on the left side and one on the right spino umbilical line .Abdominal cavity was inspected .intramural fibroid of size 10 X 6cm noted in fundo posterior region of uterus .Inj VASOPRESSIN (1cc diluted in 200ml NS – 0.1u in 1ml) 100ml is injected into thesubcapsular region of fibroid after checking the negative pressure .her BP-160/110 mm Hg; PR – 96 bpm. Blanching was noted Capsule was incised, myoma screwintroduced .Intra capsular dissection of the fibroid was started Sevoflurane 2% and propofol 30mg IV given to stabilise the patient After 15-20 mins Sudden drop of BP from 160/90 to 50/30mmHg noted ,HR -88bpm.Inj mephenteramine 12mg IV (HR-76bpm) ,Inj Adrenaline 1:10000 1cc given .No improvement seen in BP- 30/20mm Hg, (HR-166bpm).Procedure was stopped, pneumoperitoneum was deflated immediatelys. Ports removed, patient was retrieved from lithotomy to supine position.procedure was finished by laparotomy and myomectomy after her vitals were optimised . Her vitals BP-40/20mmHg,

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HR-160bpm .SECRETIONS were visible in the ETT and circuits. ?Pulmonary edema .Inotropes infusion started ,BP was still not improving. ventricular tachycardia - 25%Diagnosed as STRESS CARDIOMYOPATHY

, complete haemostasis secured with the help of surgeon .In 20 mins the procedure was completed her BP-90/68mmHg; PR-143bpm;U/O – 330ml, clear; shifted to ICU . under cardiologist and intensivist supervision she was inotropes, antibiotics and antiarrhythmics,InjDobutamine 10ml/hr started

On POD -1 patient was conscious and coherent; oriented to place and person. She had been sedated and on mechanical ventilator. Vitals stabilised on inotropes and anti arrhythmics.

OnPOD -2 she had 3 episodes of ventricular tachycardia and revived with DC shock and CPR.Her EF-25 to 30%.After 6 hours Patient suddenly went into bradycardia ;Carotids – feeble,HR – 44bpm, BP -40/30 mmHg ,pupils mid dilated not reacting,ECG – ventricular fibrillations noted

CPR was started according to ACLS guidelinesAfter 7 cycles of CPR patient was not revived and declared **DEAD**

CAUSE OF DEATH: cardiorespiratory failure , cardiomyopathy with cardiogenic shock

DISCUSSION:

Vasopressin is a naturally occurring hormone produced in the hypothalamus and secreted by the posterior lobe of the pituitary gland. Typical basal vasopressin levels are in the range of 0.5 to 2 pg/mL.Plays a key role in maintenance of plasma osmolarity .in spite of short half-life (20-40 mins) .The V1 receptor is located throughout the vascular tree, but primarily on the capillaries, small arterioles, and venules. the uterus primarily contains this form.Because of local infiltration into uterine leiomyomata results in increased vasopressin concentration in the blood which causes vasoconstriction and increased blood pressure. This sudden increase in BP activates the baroreceptors in aortic arch and carotid sinus which induce sympatho-inhibitory reflex there by lowering the cardiac contractability and heart rate

Advincula et al[1] reported an initial experience in performing robot-assisted laparoscopic myomectomy. In that series, they reported an episode of cardiogenic shock that occurred secondary to vasopressin injection.

Nezhat et al[2] reported on a 36-year-old patient who, paradoxically, developed severe hypotension and pulmonary edema after administration of vasopressin at laparoscopic myomectomy.The effect was explained by likely coronary artery spasm subsequent to vasopressin use, with the pulmonary edema secondary to cardiac failure.

The concern about use of vasopressin and the development of pulmonary edema secondary to water overload is likely more theoretical than actual at the dosages of the medication that is used.For significant water retention to occur, large dosages of vasopressin would need to be administered.

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However, the likelihood of this is low because significant hemodynamic changes will be present much earlier than any fluid imbalances or electrolyte abnormalities because the dosages administered are relatively lo

Hobo et al[3], has demonstrated that the concentration was not at fault, but the total dose delivered was (11 U vasopressin was given).another advantage of using larger dilutions is the ability to re-administer the medication. Given that the half-life of vasopressin is just under 30 minutes.large dilutions can help for creation of surgical planes and enable greater diffusion of the medication to larger areas of tissue.

Given the high potency of vasopressin to act as a vasoconstrictor.Attempts should be made to use the lowest possible dosage. Ifcardiotoxic effects are observed during vasopressin administration, nitroglycerin may be of benefit to reverse them [4,5].

CONCLUSION:

The uses of vasopressin in gynecologic surgery are wide and varied. Most of the literature on vasopressin use in gynecologic procedures used for hemostatic properties. Nevertheless, as with any medication, caution must be exercised,inspite of making sure that the laparoscopic needle has not perforated the vessel ,given dilute concentration of medication still there is a probability of womengoing into cardiogenic shock with smallest doses .making it difficult to calibrate the safe dosage and dilution of vasopressin with attention to patient selection and appropriate use to prevent potential complications.

Performing other procedures for hemostasis during myomectomy/Hysterectomy: PISSATS visual vasopressor injector needle, B/L Uterine artery clamping, Laparoscopically shoe lace suture for uterine artery ligation, ligating at the level of cervix, temporary clipping of uterine vessels Torniquets, Epinephrine, Tranexamic acid that is, ,reduces the usage of vasopressin with reduction in blood loss and need for blood transfusion .

Vasopressin can be used in appropriate cases to aid with hemostasis, with caution for the potential pitfalls and with use of the lowest dosages possible to achieve the desired effect

Other modalities etc.

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