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RETROSPECTIVE STUDY

Management of Elective Cesarean Section Anesthesia in HIV-Positive Patients

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Abstract

A 23-year-old woman with a weight of 50 kg and a height of 150 cm with a diagnosis of primigravida pregnant at term not yet in labor with HIV positive. Consular patients from the Obstetrics and Gynecology section for elective cesarean section. The patient was diagnosed with HIV positive for 2 years. The patient had been on routine antiretroviral treatment for 2. In the preoperative assessment, which included history taking, physical examination, and investigations, the patient was assessed as having an ASA 2 physical status.

Anesthesia was performed under regional subarachnoid block anesthesia with bupivacaine 0.5% hyperbaric 10 mg + fentanyl 25 mcg. Monitor blood pressure, heart rate, consciousness, ECG rhythm, oxygen saturation, urine output, and respiration. The operation lasts 90 minutes. The baby girl was born with a birth weight of 2750 grams, with an APGAR score of 7/9. hemodynamically stable, postoperative bromage score 0, the patient was returned to the ward.

Keywords

HIV, Cesarean section

Introduction

Acquired Immune Deficiency Syndrome (AIDS) was first recognized more than 20 years ago. In two decades, more than 50 million people became infected with HIV and 20 million died. Globally, two-thirds of the 36 million people living with HIV live in sub-Saharan Africa. In 2006, the number of deaths from HIV/AIDS was 2.9 million and the total number of individuals living with HIV/AIDS reached 39.5 million [1].

HIV transmission is mediated by sexual contact or blood. Neonates can be exposed directly at birth, during breastfeeding, or via the transplacental route. Currently, the most common transmission routes are homosexual contact, heterosexual contact, and intravenous drug use. All anesthetic and surgical risks in HIV-positive patients require further study. 20 to 25% of HIV positive patients require surgery for their disease. The anesthesiologist must pay attention to the disease to determine the choice of anesthesia. This multiorgan disease can have complications in the form of opportunistic infections, tumors, drug abuse, or antiretroviral drug therapy, all of which can have implications for anesthesia [2].

Case

29-years-old woman, G2P1A0, 40 weeks pregnant, not yet in labor, patient has been diagnosed with HIV since 2 years ago. Routine drugs used were stravudine 2 × 1, Lamivudine 2 × 150 mg. Complaints of fever, cough, runny nose, nausea and vomiting were denied. General condition: Compos mentis, BP 120/60 mmHg, pulse 80x/minute, respiration 20x/minute, temperature 36 °C. Physical examination within normal limits, Laboratory Hb 12.3, Leukocytes 7.65, Platelets 289,000, Albumin 3.35, Sodium 134, Potassium 4.2, Chloride 103, CD4 223 cells/µl, Viral load 4.97 × 104 IU/ml . ASA II Physical Status.

In the operating room, an ECG monitor, pulse oximetry and blood pressure were installed with a picture of Blood Pressure: 120/70 mmHg, Pulse: 96x/

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minute, SpO_2 100%. Choice of regional anesthesia with subarachnoid block puncture technique in VL3-4 projection 25 G spinal needle with local anesthetic agent 0.5% hyperbaric bupivacaine 10 mg. Anesthesia operators use plastic aprons, masks, sterile/non-sterile and google gloves, footwear for shoes, and a special box is provided to dispose of sharp objects such as needles, drug ampoules and medical waste. The operation lasts approximately 90 minutes, bleeding is 300 cc, urine output is 100 cc. During surgery, systolic blood pressure 90-130 mmHg and diastolic 60-80 mmHg, pulse 85-90 x/min, saturation 99-100%. Baby born girl, APGAR score 7/9 birth weight 2550 grams. After the baby was born, oxytocin was given 10 IU per iv as a uterotonic. After the operation is complete, the patient is treated in the ward.

Discussion

HIV infection affects pregnancy outcomes including low birth weight (less than 2500 grams), small gestational age, and low APGAR scores. HIV infection also increases the risk of preterm labor and complications of CNS toxoplasmosis by 30% in patients with CD4 counts less than 300 cells/mm^3 [3,4].

Anesthesia management

In dealing with patients with HIV/AIDS, it is necessary to know the condition of the patient's disease and the therapy that is being used. It is important to know the treatment received by the patient and evaluate the CD4 count, because patients with high CD4 values (> 500-700/mm^3) usually do not have opportunistic infections. On the other hand, in patients with opportunistic infections (CD4 count < 200/mm^3) other laboratory tests are required including: Routine blood, bleeding time, clotting time, liver function, kidney function, viral load, ECG, chest radiography and sometimes echocardiography [5].

In this patient, there is still a CD4 ratio of > 200/mm^3 and no opportunistic infections and comorbidities are found that need to be considered at the time of anesthesia and surgery. The viral load rate is still high, including conditions that are still at risk of complications. To maintain the patient's condition stable, in the room is given sufficient intake and antiretroviral therapy is continued and maintenance fluids are given to meet the needs of fluids.

Identification of pregnant patients with HIV/AIDS

Identification of pregnant patients with HIV/AIDS is important for anesthesiologists. Examination of women before or during pregnancy is an HIV antibody detection protocol. The recommended HIV testing algorithm is an initial screening with an FDA-licensed enzyme immunoassay (EIA) followed by confirmation by an FDA-licensed supplemental test (Western Blot). An HIV test is positive if there is a positive result in the initial screening and confirmation tests [5].

Conventional EIA and Western Blot results are detectable in 1-2 weeks, while rapid tests for the detection of antibodies to HIV can detect them in 10-68 minutes. This rapid test can provide definitive negative and positive preliminary results and identification of women requiring antiretroviral therapy and their infants with chemoprophylaxis. The predictive value of reactive rapid tests is greater in people at risk of HIV infection, particularly in areas with high HIV prevalence [6].

The diagnosis of HIV infection in pregnancy often raises questions about the safety of regional anesthesia and analgesia for these patients. The underlying reason is that spinal needle induction increases the risk of developing neurological sequelae of HIV/AIDS. However, at present, HIV infection is not a contraindication to the administration of neuraxial anaesthesia. HIV is a neurotrophic virus, and the central nervous system is infected in the early period of the disease process [7].

Anesthesia technique for surgery in patients with HIV/AIDS was selected based on preoperative assessment. Regional anesthetic technique is used if there is no coagulopathy and no neurological disorders, while if general anesthesia is chosen, the drugs used can interact with protease inhibitor antiretroviral drugs so that it can affect their metabolism.

General anesthesia

General anesthesia can be performed but must pay attention to drug interactions and multiorgan disease due to HIV infection. Anesthesia reduces cellular immunity. Antiretrovirals inhibit the cytochrome p450 enzyme so that etomidate, atracurium, remifentanyl and desflurane are selected which are not affected by cytochrome p450. While opioids and benzodiazepines are affected by cytochrome p 450 so their use must be more careful. Succinylcholine is administered with caution in patients with renal dysfunction and in the presence of myopathy. The involvement of oropharyngeal and esophageal pathology makes patients prone to intubation difficult, prone to regurgitation and aspiration [1].

Regional anesthesia

In the presence of anesthetic drug interactions and ARVs in general anesthesia, regional anesthesia is considered for use in labor anesthesia. Regional anesthesia does not affect ARVs and the immune system. In elective cesarean section, regional anesthesia is chosen because it provides good analgesia, suppresses the secretion of epinephrine and norepinephrine, both of which can impair blood flow to the uterus and kidneys. Other advantages include better peripheral perfusion, increased uteroplacental blood flow, and minimal effect of anesthetic drugs on the infant [1].

In this case subarachnoid block regional anesthesia was chosen because there were no coagulopathy and

neurological disorders. The use of subarachnoid block because it reduces the risk of exposure to blood but the risk of needle stick is quite high because the spinal needle has a sharp tip. Installation of monitoring tools is very important to determine hemodynamic changes.

Personal safety equipment

Protection of the body against contact with blood, body fluids including blood, semen, vaginal secretions. Tissue, cerebrospinal fluid, pleura, peritoneum, pericardial and amniotic fluid [8].

1. Wash hands, one of the most important things is to wash hands before and after dealing with patients. Proper hand washing can reduce the risk of transmitting HIV and other infectious agents.
2. Using gloves, a pair of gloves is used and can be doubled during surgery to avoid the risk of sharp object injury.
3. Goggles and masks, eyes can be protected from contact with secretions by using goggles. Masks and hats protect the head and face from exposure to body fluids.
4. Footwear, feet are at risk of being exposed to debris and abrasion, money may be contaminated with body fluids.
5. Dresses, if available, can be used as disposable gowns, or use a plastic apron to protect against exposure.
6. Needles and sharp objects, manipulation of needles including avoiding re-closing. Needles and sharp objects are directly inserted into a special sharps box. When it is two-thirds full, the box must be immediately taken to the incinerator.
7. Surgical technique, the risk of needle stick injury is greatest in pelvic surgical procedures, diaphragmatic or thoracic hiatus. Avoid using your hands to direct the needle.
8. Linen, soaking linen for 30 minutes in 1:100 bleach solution (hypochlorite solution) can kill viruses or can be autoclaved.
9. Metal instruments, instruments are washed with soap and water, then immersed in a 2% glutaraldehyde solution for 30 minutes to kill viruses. Sharp instruments were transferred to another container with new glutaraldehyde and soaked for six hours. Other instruments can be sterilized using an autoclave.
10. The suction hose and tube are immersed in a 2% glutaraldehyde solution for six hours after washing with soap and water.

This patient has been treated in accordance with the use of personal protective equipment to avoid contact with media that can spread disease [9-13].

Conclusion

Management of pregnant patients with HIV involves multidisciplinary science. In every case of pregnant patients with HIV/AIDS, optimal patient preparation is required. Improvement of the condition with antiretroviral treatment and supportive therapy and planned elective cesarean section can reduce the incidence of vertical transmission. Anesthesia management in these patients depends on the patient's condition by paying attention to the history, physical examination, and necessary supporting examinations.

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