



AMNIOTIC FLUID EMBOLISM

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ABSTRACT

Amniotic fluid embolism is a rare problem of childbirth also it is considered as an obstetric emergency, which results in severe changes in the mechanism that affects the blood clotting. This problem is happening after the elective abortion, amniocentesis, cesarean section or any trauma occurs. This the unpreventable condition which is the reason the problem is sudden.

KEYWORDS :

Introduction:

Amniotic fluid is a protective liquid in the maternal womb during the pregnancy which protects the baby from any kind of frictions and injuries as this liquid serves as a cushion for the growing fetus as well as facilitate the exchange of nutrients, water and biochemical products between mother and the fetus.^{1,2,4}

Amniotic fluid embolism:

Embolism means any obstruction of a blood vessel that is sudden by any of the abnormal particle circulating in the blood.

An **amniotic fluid embolism** (AFE) is a rare problem of childbirth also it is considered as an obstetric emergency in which the amniotic fluid enters the blood stream and creating a serious problem which then leads to the cardiorespiratory collapse and massive bleeding.^{1,2,3}

There is one other fact that the squamous cells and the mucin which is originating from the fetus is found in the mothers pulmonary vasculature and even in the vascular beds of the kidneys, pancreas, liver, brain and spleen.¹²⁻¹⁴

Causes

The fetal cells are entering in the maternal circulation including the amniotic fluid which results in severe changes in the mechanism that affects the blood clotting. Then the intravascular coagulation occurs and results in serious bleeding.

This problem is happening after the elective abortion, amniocentesis, cesarean section or any trauma occurs. This the unpreventable condition which is the reason the problem is sudden.⁵

Risk factors:

- Misoprostol drug which is used to induce the labor is increasing the risk factor of amniotic fluid embolism.^{6,7}
- The age of the mother who is 35 years or older is also at a risk of amniotic fluid embolism.
- Multiparity
- Fetal distress
- Eclampsia
- Cervical lacerations¹⁵⁻¹⁷
- Advanced maternal age⁸
- Male fetus
- Trauma⁷

Incidence:

The amniotic fluid syndrome is a rare complication but it is found in the studies that the incidence rate is 1-12 cases per 100,000 deliveries.¹⁸⁻²¹

Signs and symptoms:

- Insufficient oxygen supply to the body tissues leads to sudden

shortness of breath.

- Sudden low blood pressure of the mother.
- Cardiovascular collapse results in failure of blood supply.⁵
- Disseminated intravascular coagulopathy leads to life threatening problems due to profuse bleeding from the uterus, incision or intravenous (IV) sites
- Anxiety results in altered mental status.
- Chills.
- Disturbance in the rhythm of heart rate results in tachycardia.^{5,9}
- Fetal distress.
- Seizures.
- Coma is the last stage.⁹

Pathophysiology:

The pathophysiology of the amniotic fluid embolism is not clarified properly. It was believed that fetal cells that consist of fetal hairs, vernix caseosa etc. and the debris occluded the pulmonary vessels.¹⁰ The fetal material is not always there in the maternal circulation in the patients with the amniotic fluid embolism, also the material often found in the women who do not develop the problem of amniotic fluid embolism. So the fetal antigens which are entering the maternal circulation triggering a response similar to systemic inflammatory response syndrome with the problem of DIC i.e Disseminated intravascular coagulation which leads to bleeding problems.¹¹ Admit the patient with amniotic fluid embolism (AFE) into the intensive care unit (ICU).

Treatment:

This treatment should be supportive and it includes:

1. The normal saturation to be maintained by administering the oxygen to the woman. Intubate the woman if necessary.
2. If the patient is arrested then start the cardiopulmonary resuscitation and even if she doesn't respond to the resuscitation perform a perimortem cesarean delivery.
3. Start crystalloid and arrange for the blood to transfuse to treat the hypotension and shock if present or to prevent.
4. Iv fluids should be administered carefully and under observation as the right ventricular function is not proper at the initial stage as it may lead to overdistension of right ventricle which could increase the risk of a right sided myocardial infarction.
5. The patients who are hemodynamically unstable plan for the pulmonary artery catheterization.
6. Monitor the wellbeing of the fetus simultaneously and if there is a risk of fetal distress then plan to deliver the fetus if it is more than 23 weeks.
7. Evaluate the patient as early as possible for the risks of clotting problems and initiate the protocols for the massive transfusion which are recommended.
8. The coagulopathy problem should be treated with the fresh frozen plasma for a patient who is having the prolonged aPTT, treat with the cryoprecipitate for a patient having fibrinogen level less than 100mg/dl and transfuse the platelets for a patient

whose platelet count is less than 20,000.²²

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