

Title : A Report from the Subcommittee for the Examination of Causes of Maternal Death and their Prevention in Perinatology Committee of Japan Society of Obstetrics and Gynecology

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Running title: Causes of Maternal Death and their Prevention

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**Abstract:**

As the fibrinogen level decreases early in atonic bleeding, early administration of FFP may be important as an initial approach to treat atonic bleeding.

Amniotic fluid embolism is classified into 2 types, conventional type and uterus-type.

**KEYWORDS:**

atonic bleeding, fibrinogen, amniotic fluid embolism

## MAIN TEXT

### **A Report from the Subcommittee for the Examination of Causes of Maternal Death and their Prevention in Perinatology Committee of Japan Society of Obstetrics and Gynecology**

Hemorrhage in the third stage of labor is the most frequent cause of maternal death. A national survey conducted by the subcommittee last year revealed the following bleeding-related factors during the third stage of labor: 1) atonic bleeding; 2) abnormal placental adherence; 3) abnormal placental adherence + atonic bleeding; and 4) placental abruption. In short, atonic bleeding is the most important factor associated with massive bleeding during the third stage of labor. In addition to this, the following 2 studies have been conducted this year:

Study 1: A secondary investigation to clarify the pathology of frequently occurring atonic bleeding, involving the same patients as those studied last year

Study 2: To examine the relationship between the type of amniotic fluid embolism and autopsy findings, in order to clarify the pathology of amniotic fluid embolism and improve the survival rate

#### Discussion:

Study 1: The results of this study demonstrated that the fibrinogen level decreases earlier than the platelet count and AT III activity when atonic bleeding occurs; however, the fibrinogen level was measured immediately after occurrence in only 33% of all patients. Considering that the fibrinogen level was not correlated with the platelet count or AT III activity, it may be important to measure fibrinogen levels in early stages, in

order to determine the pathological condition and severity of atonic bleeding. While myometrial fatigue due to prolonged labor and weak pains generally regarded as the main cause of atonic bleeding, in this study, its occurrence was not associated with prolonged labor, weak pains, or the use uterotonic agents. On the other hand, with an increase in the volume of bleeding and obstetrical DIC scores, packed red blood cells and FFP were administered. As the fibrinogen level decreases early in atonic bleeding, the early administration of FFP may be important as an initial approach to treat the disease.

Study 2: Amniotic fluid embolism is classified into 2 types: that involving cardiopulmonary collapse; and that following DIC. Pathologically, the former type is conventional, in which fetal and amniotic fluid components are observed in pulmonary blood vessels. The pathological characteristics of the latter type include: uterine atony; and the presence of fetal and amniotic fluid components in uterine blood vessels. In this type, fetal and amniotic fluid components are occasionally absent in the lungs. Among cases of clinical amniotic fluid embolism without fetal and amniotic fluid components in the lungs (or pulmonary examination findings are unavailable in life-saving settings), those involving uterine atony in the presence of fetal and amniotic fluid components in uterine blood vessels may be called uterus-type amniotic fluid embolism.

## Disclosure Statement

We have nothing to declare.