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Amniotic fluid embolism: The known and not known

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Abstract

Amniotic Fluid Embolism was first recognized in 1926, in a Brazilian journal case report, on the basis of large amounts of fetal material in the maternal pulmonary vasculature at autopsy. The first English language appeared in 1941 and consisted of 8 paturients dying suddenly in which, once again, fetal material was seen in the pulmonary vasculature. A control group of 34 pregnant women dying of other recognized causes did not have fetal material in their lungs.

The incidence of recognized, serious illness, is on the order of 2 to 8 per 100,000 with a mortality rate ranging from 16 to 35%. The diagnosis rests largely on one or more of four clinical signs: circulatory collapse, respiratory distress, coagulopathy, and seizures/ coma. The only confirmatory laboratory test remains autopsy findings although serum tests for fetal antigen, insulin-like growth factor binding protein-1 and complement are currently being investigated. One of the paradoxes of diagnosis is that fetal material in the pulmonary circulation at autopsy is specific for AFE, while the same finding in the living is not.

The mechanism of disease remains uncertain although the best available evidence suggests that complement activation might have a role. In contrast, mast cell degranulation probably is not a mechanism so AFE is not an anaphylaxis or anaphylactoid reaction as has been occasionally suggested. Perhaps the greatest unknown is not why 1 in 50,000 pregnant women develop what appears to be an immune response to their fetus but rather why the other 49,999 do not?

Biography

Michael Benson has been researching Amniotic Fluid Embolism, one of the leading causes of maternal mortality in developed nations, for the past two decades. His data suggests that Complement activation might have a role to play although he has also demonstrated that complement activation takes place during normal parturition. Author of three medical textbooks, Doctor Benson has published more than two-dozen papers in the peer-reviewed literature and has taught medical students at Northwestern for over 25 years.