Discontinuation of LS Ratio

Effective March 20, 2006, Lamellar Body counts will replace the LS Ratio for the determination of fetal lung maturity. The discontinuation of the LS Ratio addresses the laboratory's need for more efficient testing methodology, while continuing to provide physicians with tools to assess fetal lung maturity.

Lamellar bodies are concentrically layered packages of phospholipid that represent the storage form of surfactant and are "counted" in the platelet channel of modern hematology analyzers. Lamellar body counts less than 15,000 particles/microliter are indicative of immaturity, while counts above 60,000 particles/microliter are interpreted as mature. Counts between 15,000 and 60,000 are considered indeterminate.

The following is a list of limitations:

1. Urine contamination will have a dilutional effect.
2. Mucous in the specimen may result in lower lamellar bodies as the lamellar bodies may stick to the mucous strands.
3. Storage at room temperature may cause a decrease in the lamellar body counts because enzymatic activity within amniotic fluid breaks down lamellar bodies. The specimen should be kept refrigerated or on ice.
4. Meconium may result in a falsely elevated lamellar body count – usually by 5000 particles/microliter.
5. The effect of blood is biphasic. Initially the lamellar body count is increased because platelets in whole blood are counted along with the lamellar bodies. Whole blood contamination that produces a 2% hematocrit usually results in a 5% increase in the lamellar body count. After 2 hours, the procoagulant activity of amniotic fluid will lead to clotting which will result in a decreased lamellar body count.
6. Grossly bloody amniotic fluids (above 2% hematocrit) cannot be assessed.
7. Turbid specimens with macroscopic clumping may cause clogging of the analyzer and are not acceptable.
8. Samples with moderate to excessive epithelial debris have not been found to affect the lamellar body counts significantly.

Fetal lung maturity assessment at Covenant will include both the SA ratio (FLM II) and the lamellar body count. If the SA ratio and the lamellar body counts are discrepant, then a rapid PG assay may be ordered.

If there are any questions, please contact Dr. Olsowka at (989)583-6706 or Dr. Hruby at (989)583-6703.