

PROTOCOL #2 - Maternal Fetal Medicine, University of New Mexico

CONTRACTION STRESS TEST (CST)

A. General

As amniotic fluid pressure increases with contractions, uterine pressure exceeds collapsing pressure for vessels coursing through the myometrium, ultimately decreasing blood flow to intervillous space. Transient periods of impaired oxygen exchange result in late fetal heart rate deceleration if utero placental pathology exists. Contractions may also lead to variable decelerations from cord compression or oligohydramnios.

B. Indications

1. Prolonged gestation
2. Oligohydramnios
3. Conditions requiring further fetal surveillance after equivocal results
4. Condition in which fetal intolerance to a course of labor is suspected

C. Technique

1. The patient must be brought to the labor and delivery area
2. The patient is then placed in a supine position slightly to the left side or in a semi-Fowler's position
3. Routine vital signs and fetal heart tones are recorded
4. An external fetal monitor, capable of simultaneous recordings of fetal heart tones and uterine activity, is placed.
5. An intravenous infusion of dilute oxytocin is then started per protocol until contractions are present every two to four minutes apart, lasting at least 40 seconds, and judged clinically to be of good quality, then run for 30 minutes.
6. Once the test has been completed, the oxytocin infusion should be turned off and the patient observed until uterine activity returns to baseline levels.
7. Variation - nipple stimulation to produce contractions has been used with some success in overcoming some of the difficulties associated with CSTs. It may be somewhat quicker and eliminates the use of an oxytocin infusion, since nipple stimulation will release endogenous oxytocin. There are several techniques in use. In one, a warm towel is applied to both breasts. Then, if uterine activity is low, one nipple is stimulated for 10 minutes. Another technique is to have the patient stimulate one nipple with the palmar surface of her fingers for two minutes with 5 minutes' rest interposed between another stimulation, if it is needed. This second method is done through the patient's clothing.

D. Interpretation

- Negative: no late or significant variable decelerations
- Positive: late decelerations following 50% or more of contractions (even if the contraction frequency is fewer than three in 10 minutes)
- Equivocal-suspicious: intermittent late decelerations or significant variable decelerations
- Equivocal-hyperstimulatory: fetal heart rate decelerations that occur in the presence of contractions more frequent than every 2 minutes or lasting longer than 90 seconds.

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- Unsatisfactory: fewer than three contractions in 10 minutes or an uninterpretable tracing.

Note: Moderate to severe variable decelerations may indicate oligohydramnios and should be investigated by amniotic fluid semi-quantification.

CONSULTATION: Twenty-four hour consultation is available by calling the Maternal-Fetal Medicine service at the University of New Mexico Hospital, 1-888-866-7257.

SELECTED REFERENCES

American College of Obstetricians and Gynecologists: Antepartum fetal surveillance. Practice Bulletin No. 9, October 1999, Reaffirmed 2007.