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Obstetrics

FETAL OXYGENATION AND HEART RATE An experimental model in the subhuman primate where the cardiovascular and acid–base state of the near-term fetus can be directly monitored during labor has been developed. The relationship between late deceleration of the fetal heart rate, acid–base state, and level of oxygenation was studied in a series of 30 experiments. Fetal acidosis, hypoxia, and hypotension during labor were associated with an increase in baseline heart rate and late deceleration of the fetal heart rate following each uterine contraction. The late deceleration appeared as a marked transient bradycardia and was accompanied by a further decrease in fetal oxygen levels. In well-oxygenated fetuses, heart rate or the level of oxygenation during uterine contractions did not change. Late deceleration of heart rate was abolished or suppressed when the level of fetal oxygenation was increased by administration of a high concentration of oxygen to the mother. However, since fetal acidosis and hypotension persisted despite improved oxygenation, it is concluded that fetal hypoxia is the essential component leading to late deceleration of the heart rate. (*James, L. S., and others: Mechanism of Late Deceleration of the Fetal Heart Rate, Am. J. Obstet. Gynecol. 113: 578–582, 1972.*)