pair wise fashion; ie, Group 1 to 2, 1 to 3, etc. Target gene products were identified by magnitude of fold-change across groups as well as analysis for trend on the following scales: linear, logarithmic, squared, square root. Gene products of interest were identified by a P-value < 0.001 being deemed statistically significant.

**RESULTS:** We identified 33 candidate genes that were found to be significantly different between patient groups. These genes are primarily involved in muscle contraction, cell proliferation, cell cycle control, transcription/translation, immunity, intracellular maintenance, and extracellular communication. TMEM127 (trans-membrane protein involved in protein transport and inhibition of cell proliferation) was significantly down regulated with increasing obesity. Other genes (PAK7, LTK, EIF5A, GLUL) involved in initiation of cell proliferation were significantly up regulated.

**CONCLUSION:** These results suggest obesity is associated with differential expression of genes within the myometrial tissue of obese women. Further exploration of these genes may provide insight into the dysfunctional labor patterns of overweight and obese women.

TABLE 1
**Differential gene expression in myometrial tissue of obese gravidas**

| Gene symbol | Function | Expression |
|---|---|---|
| LTK | Cell proliferation, Cellular apoptosis | Upregulated |
| ADAMTS17 | Proteolysis, Metalloendopeptidase activity | Upregulated |
| SGCA | Muscle contraction, Calcium ion binding | Upregulated |
| GJA9 | Extracellular communication | Downregulated |
| R3HDM2 | Nucleic acid binding, Metal ion binding | Downregulated |
| SNORD115-3 | RNA modification | Downregulated |
| TMEM127 | Protein transport, Inhibition of cell proliferation | Downregulated |
| CECR1 | Growth factor activity, Nucleoside metabolism | Downregulated |

## 313 Defining uterine tachysystole: how much is too much?

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**OBJECTIVE:** There is a paucity of data on how much uterine activity is excessive when measured against clinical outcomes. Our purpose was to determine if uterine tachysystole as defined by the American Congress of Obstetricians and Gynecologists, 6 or more contractions per 10 minutes, is associated with adverse fetal outcomes.

**STUDY DESIGN:** This is a prospective cohort study of 584 women undergoing induction of labor with 100 micrograms of oral misoprostol. Fetal heart rate tracings were analyzed for contractions per 10 minutes during the initial 4 hours after misoprostol administration. Patients were divided into 4 groups: ≤4, 5, 6, ≥7 contractions per 10 minutes. Infant condition at birth was assessed using 5- minute Apgar ≤3, umbilical artery blood pH ≤7.1, intubation in the delivery room, neonatal seizures, NICU admission, or perinatal death. Cesarean delivery for FHR indications was also analyzed.

**RESULTS:** Infant outcome and cesarean birth for FHR indications showed no associations with the number of contractions per 10 minutes (Table). However, 6 or more contractions in 10 minutes were significantly associated with FHR decelerations (p=<0.001); this was true for variable, late, and prolonged decelerations (p=<0.001, p=0.02, p=0.017 respectively). Analysis was also performed using the maximum number of contractions per 30 minutes and the results were similar to those for 10- minute intervals.

**CONCLUSION:** Uterine activity quantified as the maximum number of contractions per ten minutes or per 30 minutes was not found to be associated with cesarean delivery or any measure of infant condition at birth that could serve to define excessive uterine contractions. However, 6 or more contractions per ten minutes was associated with increased fetal heart rate decelerations. We conclude that the current recommended definition of uterine tachysystole by the American Congress of Obstetricians and Gynecologists as 6 or more contractions per ten minutes is an appropriate definition.

Table 1. Selected outcomes in relation to uterine contractions per 10 minutes during the first 4 hours of induced labor.

| | Maximum contractions per 10 minutes | | | | |
|---|---|---|---|---|---|
| | ≤4 | 5 | 6 | ≥7 | |
| Outcome | N=152 | N=179 | N=134 | N=119 | P-value |
| 5- minute Apgar ≤3 | 0 (0) | 1 (1) | 0 (0) | 0 (0) | 0.62 |
| Umbilical artery pH ≤7.1 | 26 (17) | 30 (17) | 17 (13) | 23 (19) | 0.89 |
| Seizures | 0 (0) | 0 (0) | 0 (0) | 0 (0) | – |
| Intubation at delivery | 1 (1) | 0 (0) | 0 (0) | 0 (0) | 0.42 |
| NICU admission | 5 (3) | 3 (2) | 0 (0) | 1 (1) | 0.14 |
| Perinatal death | 0 (0) | 0 (0) | 0 (0) | 0 (0) | – |
| Cesarean for FHR | 16 (11) | 17 (9) | 11 (8) | 8 (7) | 0.72 |

All data shown as N (%).

## 314 Obese women have longer duration of the first stage of labor

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**OBJECTIVE:** While many studies have identified maternal obesity as a risk factor for cesarean delivery, the effect of obesity on the progress of labor is less clear. We aimed to estimate the effects of obesity on the duration and progression of the first stage of labor.

**STUDY DESIGN:** We performed a retrospective cohort study of labor progression among 5204 consecutive parturients with singleton term pregnancies (≥ 37 weeks) and vertex presentation who completed the first stage of labor. Two comparison groups were defined by body mass index (BMI) 4000g, and prior cesarean.

**RESULTS:** The labor curves indicate longer duration and slower progression of the first stage of labor among women with BMI>30, both overall and when stratified by parity (Figure). Multivariable interval-censored regression analysis confirmed significantly longer duration (4 to 10cm: 4.6 versus 4.0 hours, p<0.001) and slower progression of cervical dilation from 4 to 6cm (2.4 versus 1.9 hours, p<0.001, with a range of 0.5-10.7 hours) among women with BMI ≥30 after adjusting for confounders (Table).

**CONCLUSION:** The overall duration is longer and progression of the early part of the first stage of labor is slower in obese women. This suggests that obesity should be considered in defining norms for management of labor particularly in the early part of the first stage.