

HYPOTHESIS

•The electrical uterine activity during the induction phase of labor differs physiologically between patients that receive cervidil for cervical ripening and patients that are induced with pitocin alone.

OBJECTIVE

•To characterize the myometrial electrical activity during induced labor in patients who receive cervidil for cervical ripening compared to those receiving pitocin alone.

MATERIALS AND METHODS

•Patients presenting to Labor and Delivery between January 1, 2008 and January 1, 2009, meeting inclusion and exclusion criteria, were recruited into a prospective, blinded, IRB-approved study.

MANAGEMENT PROTOCOL

INCLUSION CRITERIA:

- Admitted at ≥34 weeks GA in spontaneous labor or for indicated induction
- Vertex
- Singleton

EXCLUSION CRITERIA:

- Spontaneous labor patients requiring pitocin augmentation to effect delivery
- Multiple gestation
- Malpresentation
- IUGR (<10th %ile) with abnormal doppler studies
- Anomalous fetus
- Elective shortening of second stage

Induced labor

Cervical Ripening No Cervical Ripening

Spontaneous labor (n=5)

Pitocin Induction

- At study entry:**
- Baseline cervical exam & EUM
- Throughout labor:**
- Cervical exam as clinically indicated
 - EUM as cervical dilatation progresses

•Maternal and neonatal outcome data obtained from medical records.
 •EUM data recorded and sent offsite to analyst blinded to clinical data.
 •Student's *t* test used for all numerical data and Chi-square and Fisher's exact test used for categorical data.

EUM-100



EUM-100:

- Multi-channel electromyogram monitor
- 9 evenly spaced electrodes
- 3-dimensional position sensor
- Signal amplifier
- High-pass and low-pass filters
- Unit of electrical uterine activity = pRMS (peak root mean square)
- pRMS = $\sqrt{\text{mean} \times \frac{[\text{voltage waveform}]^2}{\text{time}}}$

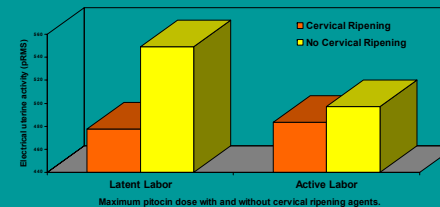
RESULTS

Demographics

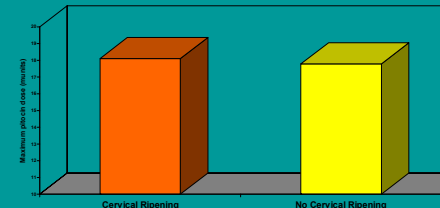
	Cervical ripening (n=23)	No cervical ripening (n=17)	P-value
Bishop score	1.7±2.0	7.1±1.7	<0.0001
Age	30.8±6.8	33.5±3.5	NS
Race (white/other)	35%/65%	65%/35%	0.06
BMI	26.89±5.2	22.74±3.2	0.0008
Parity (nullip/multip)	83%/17%	29%/71%	0.0007
Birthweight	3287±611	3494±498	NS

- Lower starting Bishop score in patients receiving cervical ripening.
- Higher BMI in patients receiving cervical ripening.
- Higher percentage of nulliparous patients beginning induction with cervical ripening.

Electrical uterine activity with and without cervical ripening agents.



- The difference in electrical uterine activity during latent labor (<4cms) did not reach statistical significance. (p=0.19)
- Electrical uterine activity during active labor (≥4cms) was not different between the 2 groups. (p=0.72)



- Maximum pitocin dose used was no different in inductions beginning with cervical ripening versus pitocin alone. (p=0.94)

CONCLUSIONS

- The use of cervical ripening agents such as cervidil does not change the electrical uterine activity achieved during induction of labor.
- Cervical ripening agents are more commonly used in patients with lower starting Bishop score, nulliparous patients, and patients with higher BMI.
- The maximum pitocin dose used for induction does not differ if cervical ripening agents are used.