A97 (Poster 56)

Title: Progesterone Increases Cellular Growth in Human NT2 Cells

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Introduction: We studied the effects of progesterone on cellular growth. Human teratocarcinoma cells (NT2) are neuronal precursor cells. These cells can be induced to differentiate into neurons, which function as a good model for CNS neurons. We hypothesize that progesterone has a positive effect on cellular growth.

Methods: The NT2 cells are grown and maintained in media having either high (50 ng/dL) or low (<10 ng/dL) concentrations of progesterone. The rate of DNA synthesis was measured as an index of cellular proliferation. The NT2 cells are incubated for 2 hours with 0.5 μCi/ml [^{3}H]thymidine at indicated timepoints. The DNA was precipitated and the incorporated [^{3}H]thymidine measured by liquid scintillation counting.

Results: These preliminary data represent the results of the [^{3}H]thymidine incorporation studies to date. Each number below represents an average of two experiments, each timepoint was measured in triplicate. The data are expressed as percentage of baseline at 2 hours [^{3}H]thymidine incorporation (Table). The cells exposed to the high progesterone had a higher rate of DNA synthesis than did those in the low progesterone environment.

% Baseline [^{3}H]thymidine Incorporation

	8 hours	24 hours	48 hours
High Progesterone	229	320	758
Low Progesterone	160	186	411

Discussion: These results suggest that progesterone promotes growth in the NT2 cell line. Further studies are underway to investigate the role of progesterone in decreasing cellular injury.

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A98 (Poster 57)

Calculation Of Segmental Dose Requirement Of Epidural Lidocaine From Anthropometric Variables

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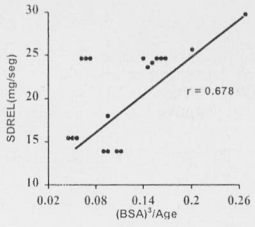
We studied the segmental dose requirement of epidural lidocaine [SDREL]for producing extradural neural blockade of a given number of spinal segments in 20 pregnant women [mean age 30.8years; range 18-35 years] scheduled for elective lower segment Caserean section [LSCS]. All of them were free from systemic disease and belonged to the American Society of Anesthesiologists [ASA] grade I or II. Informed consent was secured from all the patients for participation in the study and the study was approved by the Ethics Committee of the Institute. In all patients, height [m] and weight [kg] were measured and the body surface area [BSA; m^2] was calculated. Under strict aseptic precautions, epidural catheter was introduced and fixed to the back. No drug was injected at this stage. The patient was turned into supine position, a wedge was placed under the left buttock and 15 ml of 2% lidocaine [300 mg] was injected through the epidural catheter over 3 minutes. After 25 minutes of injection, the upper and lower extent of sensory blockade was assessed on both the sides and the LSCS was allowed to commence. SDREL was calculated by dividing the dose of injected lidocaine [300 mg] by the number of spinal segments blocked. Linear regression analysis was used to study the relation between SDREL and anthropometric variables. Moderately positive correlation was observed between SDREL and height [r=0.51, t=3.61, p<0.001]; weight [r=0.52, t=3.75, p<0.001]; body surface area [r=0.57, t=4.29, p<0.001]. An index combining the third power of BSA and age [BSA^3/age] [Figure] exhibited a strong correlation with SDREL [r=0.68, t=5.69, p<0.001].



The regression equation for this relationship was as follows:
SDREL[mg/seg]=12.56+[(3.2xBSA^3)/age]
We conclude that exact SDREL can be calculated using the regression equation listed above and this knowledge will be useful in rendering the technique safe.

A99 (Poster 58)

Epidural Ropivacaine 0.50% Vs 0.75% For Cesarean Delivery

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The aim of this study , approved by our hospital Ethics Committee, was to evaluate the effects of two different concentrations of epidural Ropivacaine for cesarean delivery (Stark technique) , focusing on their safety, analgesic power, main side effects mostly hypotension related.

Fifty women, ASA 1-2 with uncomplicated pregnancy, after written consent were randomized into two groups comparable for age, weight, weeks of pregnancy, parity. Fifteen had undergone to previous c.d.

All patients received i.v. infusion of Ringer's Lactate 500 ml with Ephedrine 25 mg over 20 min, stayed in the sitting position and the epidural space was incannulated at L2-3 or L3-4 with 3 cm catheter left in before returning to lie with a left lateral lift.

25 patients (group A) received Ropi 0.50% up to 12 ml (height <160 cm) or 15 ml over 8-10 min and Fentanyl 75 mcg. 25 patients (group B) received Ropi 0.75% and Fentanyl by the same way.

Blood pressure and the anesthesia level were tested every 2 min, Bromage motor block score (0 to 3) just before starting, Apgar score at 1 and 5 min, the needs of supplemental analgesia (i.v. Fentanyl) and the main side effects were recorded (hypotension =< 90 mmhg). Onset time was considered when analgesia was at T10, the surgeon was invited to start when at around T4.

We arbitrarily assumed to classify as " very good " the patients without main side effects and not needing any further analgesics.

The surgical mean time was 23 , averaging between 12 and 48 min. Onset time didn't differ between the two groups, averaging 13-14 min, so the Bromage score. The percentage of hypotension was much lower in the Ropi 0.50, the Apgar scores a bit higher. The needs for supplemental analgesia were about the same, while increased along with the surgical time. One patient needed general anesthesia in group A, none in group B.

Finally, this little experience indicates that epidural Ropi 0.50 may offer a good and safe alternative to usual Ropi 0.75 for cesarean delivery.

References: International Journal of G.& Obstetrics 54 (1996) pagg. 281-292

	ONSET	HYPOTENSION	S.ANALGESIA	"VERY GOOD"	BROMAGE	APGAR
GROUP A	13 min	7/25 (28%)	7/25 (28%)	13/25 (52%)	0 11 1 6 2 6 3 2	8.6 9.4
GROUP B	13 min	12/25 (48%)	6/25 (24%)	13/25 (52%)	0 13 1 8 2 4 3 0	8.1 9.0

A100 (Poster 59)

Title: Multiport Epidural Catheter Test Doses

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Closed-tip multiport epidural catheters have fewer missed segments but more intravenous insertions than open-tip uniport catheters.(1) Multiport catheter holes may be in different body compartments.(2) A multiport catheter test dose should be safe if the entire dose is injected IV (3 IV holes) but effective if only partially injected IV (1 IV hole). Because injectates preferentially exit the proximal hole but the distal hole is the one most frequently malpositioned, I estimate that an ideal test dose should have a >10-fold therapeutic window.(2,3) Clearly, epinephrine, isoproterenol, air, fentanyl, and local anesthetics lack therapeutic windows this large.

Indocyanine green (ICG) is a dye used to measure cardiac output that is detectable over a wide concentration range. Studies reported in abstract form find no spinal cord pathology after spinal injection in rats and rabbits.(4,5) The animal study authors have patented the idea of an ICG test dose (# 5,402,779). Pulse-oximeter-like detectors for ICG are available (Sumitomo Electric). I believe that ICG may be the best multiport test dose candidate and would like to test it in humans. However, questions arise.

1. Is there any point to using any test dose with multiport catheters?
2. Has sufficient animal neurotoxicity testing of ICG been done?
3. Does the patent represent an insurmountable obstacle?
4. How large should the therapeutic window be?
5. Even if ICG were an ideal test, would clinicians buy ICG monitors?
6. Would ICG tests be viewed with the repugnance that greeted air tests?
7. Would research interests alone justify developing an ICG test dose?
8. Are either of the two current catheter designs the best possible? Is it acceptable that 5-15% of obstetric epidural catheters end up in veins?

References: **1.**Anaesthesia 1989;44:578-80 **2.**Acta Anaesthesiol Scand 1986;30: 549-55 **3.**Anaesthesia 1988;43:876-8 **4.**Reg Anesth 1996;21:S105 **5.**Reg Anesth 1997;22:S59