

[NM-269] Comparative evaluation of Gabapentin and Pregabalin use in children for spinal fusion surgery: Is one better than the other?

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Perioperative use of gabapentin and pregabalin has been found to have a beneficial effect on postoperative pain from a wide variety of procedures. The aim of our study is to compare the perioperative use of these two drugs in children undergoing posterior spinal fusion (PSF) for idiopathic scoliosis.

**Methods**  
Following IRB approval, data from 90 patients undergoing PSF for idiopathic scoliosis were collected retrospectively. Patients were divided into two groups:

Group G: Gabapentin: 45 patients  
Group P: Pregabalin: 45 patients

For Group G patients, one dose of Gabapentin (12.5 mg/kg up to 1000 mg) was given one hour before surgery, and continued postoperatively (100 mg – 200 mg TID) until discharge.

For Group P patients, one dose of Pregabalin (100–150 mg) was given one hour before surgery, and continued postoperatively (50–75 mg BID) until discharge.

The parameters observed were the amount of propofol used intraop, morphine consumption, pain scores (VAS), pruritis, nausea/vomiting, time to ambulation and length of hospital stay.

**Results**  
Data was analyzed using ANOVA for quantitative data, posthoc analysis by Tukeys test and Chi-square analysis used for non parametric data. Significance assumed at  $P < 0.05$  (IBM, SPSS, Armonk, NY). Both groups were similar in demographics. There was no difference between groups in morphine use, time to postop ambulation, pain scores (VAS), pruritis, nausea/vomiting and length of stay. Amount of propofol used intraop was lower and time to emergence following surgery was shorter in Group P. The most remarkable difference was in the cost of two medications. Cost of five days pregabalin (\$307.94) use was forty four times greater than that of gabapentin (\$6.98).

**Conclusions**  
Both gabapentinoids are similar with regards to their effect on various outcome measures that we studied. However, amount of propofol used and time to emergence following surgery was shorter in P group. We feel this difference is essentially because the P group was the later of the two groups studied. The anesthesia practitioners, by then, had become familiar with the significant sedative effect of gabapentinoids and preemptively reduced propofol infusion rates. This also led to shorter emergence time from anesthesia. In conclusion, since pregabalin costs prohibitively more (44 times) than gabapentin, and provides no added benefit, we recommend perioperative use of gabapentin for PSF surgery.

**References**  
1. Tippana E M, et al. *Anesth Analg* 2007; 104: 1545-56.  
2. Rusy L M, et al. *Anesth Analg* 2010; 110:1393-8.  
3. Clark H, et al. *Anesth Analg* August 2012 115:428-442.

| Parameter                                | Gabapentin    | Pregablin     | P value |
|--|---------------|---------------|---------|
| No. of patients                          | 45            | 45            |         |
| Gender(M/F)                              | 31/14         | 33/12         | NS**    |
| Time to Emergence(min)                   | 17.33 ± 13.1  | 11.6 ± 8.2    | 0.024*  |
| Propofol (mcg/kg/min)                    | 156.92 ± 24.0 | 137.87 ± 26.5 | 0.003*  |
| Morphine (mg/kg/hr)                      | POD-0         | 0.04 ± .02    | NS**    |
|  | POD-1         | 0.03 ± .01    |         |
| Ambulation (# of patients)               | Day-1         | 20            | NS**    |
|  | Day-2         | 25            |         |
| Transition to oral on POD 1 (# patients) | 22            | 26            | NS**    |
| Cost of medications                      | \$6.98        | \$307.94      |         |

\*P value < 0.05; \*\*NS (not significant)