

ORIGINAL ARTICLE

Measurement of Postoperative Pain in Children by Visual Analogue ScaleSoheli Alam¹, A K M Shamsuddin², Abusaleh Md. Waliullah³, Akhlaque Hussain Khan⁴**Abstract:**

Inadequate postoperative pain control causes significant morbidity and mortality. In the present context, in the paediatric surgery department the effective pain control is not standardized. For this reason this study was undertaken to find out the degree of effective postoperative pain control in children by using Visual Analogue Scale (VAS). It was a cross-sectional study for two years. Sample size was 90 with a mean age of 8.7 years. Patients were selected from the Department of Paediatric Surgery of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka; Bangladesh Institute of Child Health & Dhaka Shishu Hospital (BICH & DSH), Dhaka; and Dhaka Medical College hospital (DMCH), Dhaka. Children aged five to 12 years receiving postoperative analgesics were included in this study. All of them were mentally healthy, well responsive and co-operative. Patients were selected in such a way that neither they had any malignant disease nor were they suffering from any chronic pain or postoperative pain due to surgical wound sepsis. Postoperative pain was measured by VAS from the first postoperative day to the seventh postoperative day and was graded by the Sriwatanakul's method. It was found that difference in pain scores were statistically non-significant among the three institutes from the first postoperative day to the seventh postoperative day. Patients experienced moderate pain up to the third postoperative day, mild pain up to the fifth postoperative day and some pain up to the seventh postoperative day. Postoperative pain was not effectively controlled by currently used analgesics in paediatric surgery departments in these hospitals. So to find out the degree of effective postoperative pain control in children further study should be carried out with large number of patients in different centres of Bangladesh.

Introduction:

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

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Postoperative pain is not only causing human sufferings but also there is convincing evidence that unrelieved postoperative pain may result in harmful physiological and psychological effects leading to significant morbidity and even mortality¹.

Evidence of shortened hospital stay and increased patient satisfaction has been reported in association with effective relief of postoperative pain². Such a premise calls for

the prompt and effective control of pain during the post-operative periods in children.

The measurement of pain is important a) to determine pain intensity, quality and duration and b) to help decide on the choice of therapy³.

In the present context of practice in the paediatric surgery departments, effective pain control is not standardized. For this reason this study was undertaken to find out the degree of effective postoperative pain control in children by using Visual Analogue Scale.

Materials and method:

This cross-sectional study was done from July 2003 to June 2005. Ninety admitted patients (30 from each hospital) were included in this study with the mean age of 8.7 years from the department of paediatric surgery of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh

Institute of Child Health and Dhaka Shishu Hospital (BICH and DSH), Dhaka and Dhaka Medical College Hospital (DMCH), Dhaka who underwent major elective surgery.

Children receiving postoperative analgesics were included in this study. Patients were selected in such a way that neither they had any malignant disease nor were they suffering from any chronic pain or any postoperative pain due to surgical wound sepsis.

Postoperative pain was measured by Visual Analogue Scale (VAS) from the first to the seventh postoperative day. Various grades of pain were explained to the patients by various strength of skin pinching⁴.

Mentally healthy, well responsive and co-operative patients, who could label pain score on the VAS accurately were included in this study. Measured postoperative pain score categorized into different grades according to

Table-I: Mean value of pain score (VAS in mm) from first to seventh postoperative day (POD)

| POD | A (BSMMU) (n=30) mean+ SD | B (BICH & DSH) (n=30) mean+ SD | C (DMCH) (n=30) mean+ SD | p Value |
|------|------------------------------|-----------------------------------|-----------------------------|--|
| POD1 | 58.67±3.42 | 59.17± 3.56 | 59.83±2.87 | A vs B: $p > .10^{ns}$ B vs C: $p > .50^{ns}$ A vs C: $p > .50^{ns}$ |
| POD2 | 46.00± 6.88 | 44.33± 4.84 | 45.00± 5.98 | A vs B: $p > .10^{ns}$ B vs C: $p > .10^{ns}$ A vs C: $p > .10^{ns}$ |
| POD3 | 35.00± 1.25 | 36.83± 1.48 | 35.67± 1.00 | A vs B: $p > .05^{ns}$ B vs C: $p > .50^{ns}$ A vs C: $p > .50^{ns}$ |
| POD4 | 30.00± 1.00 | 29.20± 1.56 | 30.67± 1.50 | A vs B: $p > .10^{ns}$ B vs C: $p > .50^{ns}$ A vs C: $p > .50^{ns}$ |
| POD5 | 25.17± 3.86 | 25.67± 3.48 | 25.50± 4.01 | A vs B: $p > .50^{ns}$ B vs C: $p > .05^{ns}$ A vs C: $p > .50^{ns}$ |
| POD6 | 19.33± 1.02 | 19.00± 1.33 | 18.17± 1.06 | A vs B: $p > .10^{ns}$ B vs C: $p > .50^{ns}$ A vs C: $p > .50^{ns}$ |
| POD7 | 17.67± 2.17 | 17.33± 1.85 | 16.67± 1.54 | A vs B: $p > .10^{ns}$ B vs C: $p > .05^{ns}$ A vs C: $p > .05^{ns}$ |

Table-I shows that value of pain scores were statistically non-significant ($p > .10$, $p > .50$, $p > .05$) among the three institutions from the first postoperative day to the seventh postoperative day. On the first postoperative day the mean value of pain scores in three different centers were 58.67 ± 3.42 (BSMMU), 59.17 ± 3.56 (BICH & DSH) and 59.22 ± 2.87 (DMCH).

its severity:

- 1) little pain = (13.9 ± 6.4) ;
- 2) some pain = (19.0 ± 10.2) ;
- 3) mild pain = (19.6 ± 10.4) ;
- 4) moderate pain = (42.8 ± 10.7) ;
- 5) severe pain = (82.9 ± 9.6) ;
- 6) agonizing pain = $(91.2 \pm 8.0)^5$.

Effective postoperative pain control was defined as the pain score below 13 mm in the VAS on the first postoperative day^{6,7}.

Statistical analysis was done by ANOVA.

Results:

Total 90 admitted patients who underwent major elective surgery were enrolled in this study. Mean age of the study population was 8.7 years (range: 5-12 years).

Discussion:

When pain was measured, difference in pain scores was found to be statistically non-significant ($p > .10$, $p > .50$, $p > .05$) among the three institutions from the first postoperative day to the seventh postoperative day. On the first postoperative day the mean value of pain scores in three different centres were: 58.67 ± 3.42 (BSMMU), 59.17 ± 3.56 (BICH & DSH) and 59.22 ± 2.87 (DMCH). It was clearly evident from pain scores of the study that the postoperative pain could not be effectively controlled in these three centres with current analgesic practice.

Patients experienced moderate pain up to the third postoperative day, mild pain up to the fifth postoperative day and some pain up to

Table-II: Mean value of pain score (VAS in mm) and their pain grading in different postoperative days (POD)

| POD | BSMMU (n=30) Pain score mean \pm SD | BICH & BSH (n=30) Pain score mean \pm SD | DMCH (n=30) Pain score mean \pm SD | Pain grading |
|------|--|---|---|-----------------|
| POD1 | 58.67 \pm 3.42 | 59.17 \pm 3.56 | 59.83 \pm 2.87 | Moderate |
| POD2 | 46.00 \pm 6.88 | 44.33 \pm 4.84 | 45.00 \pm 5.98 | Moderate |
| POD3 | 35.00 \pm 1.25 | 36.83 \pm 1.48 | 35.67 \pm 1.00 | Moderate |
| POD4 | 30.00 \pm 1.00 | 29.20 \pm 1.56 | 30.67 \pm 1.50 | Mild |
| POD5 | 25.17 \pm 3.86 | 25.67 \pm 3.48 | 25.50 \pm 4.01 | Mild |
| POD6 | 19.33 \pm 1.02 | 19.00 \pm 1.33 | 18.17 \pm 1.06 | Some |
| POD7 | 17.67 \pm 2.17 | 17.33 \pm 1.85 | 16.67 \pm 1.54 | Some |

Patients experienced moderate pain up to the third postoperative day, mild pain up to the fifth postoperative day and some pain up to the seventh postoperative day (Tables-I and II).

the seventh postoperative day. This finding is similar to the observation of Thomas where pain control was found to be moderate after the second postoperative day⁸.

Postoperative pain was not adequately controlled by currently used analgesics in three paediatric surgery departments in these

hospitals. So, to find out the degree of effective postoperative pain control in children further study should be carried out with large number of patients in different centres of Bangladesh.

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