ORIGINAL **PROF-852**
(CLINICAL PRACTICE ARTICLE)

POST CIRCUMCISIONAL PAIN;
COMPARISON OF CAUDAL AND PENILE BLOCKS FOR RELIEF OF PAIN

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ABSTRACT ... szhaider12@hotmail.com **Objectives:** To compare the quality of pain relief with penile and caudal blocks, after circumcision. To compare effectiveness, complication and acceptance by the parents. **Design:** Comparative observational study. **Setting & period:** In the department of Anesthesia and intensive care Allama Iqbal Medical College / Jinnah Hospital Lahore from Feb 1999 to March 2000. **Patients & Methods:** One hundred children were selected for the study ranging from 1-10 years of age. Fifty children were randomly assigned to one of the two groups each i.e. penile block (P) group and caudal block (C) group. All patients were anaesthetized and then before the commencement of surgery either penile block or caudal block was performed. Children were nursed after surgery in recovery room for three hours. **Results:** Effectiveness of two techniques, any complication and acceptance by the children and the parents were studied during three hours stay in recovery area. **Conclusion:** Both penile and caudal blocks are effective in controlling postoperative pain of circumcision in children. These blocks also reduce the requirement of systemic analgesia.

Keywords: Postoperative Analgesia, Regional Analgesia, Caudal, Penile, Circumcision.

INTRODUCTION

Children like adults suffer from pain and need pain relief. Ritual circumcision is very commonly performed procedure which is associated with significant pain. This pain can be distressing not only to the patient but also to parents and nursing staff, sometimes leading to serious effects such as postoperative bleeding.

Systemic analgesics, opioid and non-opioid, are both less effective and fraught with side effects. Moreover conventional systemic analgesics are more often administered through intra muscular route which is obviously undesirable in children. This study compares two regional anesthetic techniques i.e. penile and caudal blocks. These techniques are simple, safe, easy to learn, economical and have proved their worth in controlling

post circumcisional pain. These techniques are more often combined with general anesthesia.

PATIENTS & METHODS

One hundred ASA class 1 children between 1-10 years of age were selected. Fifty were to receive penile block and other fifty caudal blocks. Facilities for general anesthesia were ensured. Local anesthetic 0.5% bupivacaine, disposable syringes and suitable needles were also made available. Resuscitation trolley was at hand.

Table: I. Pain / Discomfort Score

Name_____ Son of _____
Age: _____ Weight _____
Dose _____ Technique _____

Observation	Criteria	Points
Blood Pressure	± 10% of baseline	0
	> 20% of baseline	1
	> 30% of baseline	2
Crying	Not Crying	0
	Crying but responding to tender loving care	1
	Crying but not responding to tender loving care	2
Movement	None	0
	Restless	1
	Threshing	2
Agitation	Patient asleep or calm	0
	Mild	1
	Hysterical	2
Posture	No special posture	0
	Faxing legs & thighs	1
	Handling scrotum or groin	2

Time: _____ Total score: _____

This proforma was used for the assessment of post circumcision pain relief.

Patients of both groups were prepared for general anesthesia as per routine but no pre medication was offered. Anesthesia was induced with injection pentothal (5 mg/kg) or halothane and maintained with halothane in O_2 and N_2O using facemask and modified Ayers T-piece.

After attaining proper depth of anesthesia regional blocks were performed using Dalen's two injections technique with 0.5% bupivacaine solution (0.1 ml/kg). Caudal epidural space was located with 23g 1 inch needle using loss of resistance to injection of air technique. Bupivacaine 0.25% in dose of 0.5 ml/kg was injected thereafter.

Children of non consenting parents, of ASA class more then 1, those with history of bleeding diathesis and upper respiratory tract infection and those with difficult anatomy of sacral hiatus were excluded from the study.

The pulse oximetry, electrocardiography, precordial stethoscope and non-invasive blood pressure cuff were used as monitoring.

Throughout the study period i.e. three hours, patients were observed for pulse rate, blood pressure, color of skin and respiration in the recovery room.

Pain assessment was done using Hanalla's ten point scoring system (table I). Five parameters were taken into account i.e blood pressure, cry, movement, agitation and posture.

RESULTS

One hundred children of ASA class 1 were divided into two groups, Group P (penile block group) and group C (caudal block group). Children in group P had mean age of 3.78±0.3706 years and those in group C 5.24±0.4076 years. The difference was statistically significant (p=0.009). Mean weight of children in group C was also significantly higher then those in group P (p=0.017) table II. However no significant difference was observed

between two groups regarding preoperative blood pressure.

Table. II Demographic data			
Characteristics	**Group-P Mean±SEM**	**Group-C Mean±SEM**	**P-Value**
Age	3.78±0.3706	5.24±0.4076	0.009*
Weight	16.46±0.8001	19.32±0.8669	0.017*
**Statistically significant*			

All children in both groups were evaluated in recovery room for their experience of pain at time 0.00 hours (immediately after circumcision), at 1.50 hours and finally at 3.00 hours. Mean pain score of both groups is shown in Table IV. When compared independently mean pain score for both the groups was not significantly different at 0.00 hours and after 3.00 hours. There was, however, a borderline significant observed at 1.50 hours for the mean pain score in children of both the groups (p=0.052)

Table III Baseline blood pressure			
Characteristics	**Group P (Mean ±SEM)**	**Group C (Mean ±SEM)**	**P-Value**
Blood Pressure Systolic (baseline)	97.70±0.6732	96.80±1.9575	>0.05
Blood pressure Diastolic (baseline)	65.30±0.4826	65.60±0.5466	>0.05

Table IV Pain Score Data			
Time	**Group P Penile block group (Mean ±SEM)**	**Group C Caudal Block group (Mean ±SEM)**	**P-Value**
0 hours	0.20±0.1512	0	0.189
1.50 hours	0.34±0.1729	0	0.052*
3.00 hours	0.06±0.0443	0.04±0.04	0.738
**Statistically significant*			

Repeated analysis of variance (ANOVA) showed non-significance of groups mean pain scores over the period of study time (p=0.07), thereby implying a continuous homogenous pattern of pain relief for both the groups.

Table IV shows incidence of complications. Four parameters were considered i.e vomiting, urinary retention, inadequate analgesia and disturbance in balance. Caudal group had more disturbance in balance (p=0.001). Other complications were comparable.

Table: V. Comparison of Complications			
Complications	**Group P**	**Group C**	**P-Value**
Vomiting	4	2	0.400
Delayed Voiding	43	47	0.182
Incomplete Analgesia	5	1	0.092
Disturbance of balance	2	45	0.001*
**Statistically Significant*			

DISCUSSION

The development of pain pathways stress response in fetus, neonate, infant and child has been elucidated and has led to widespread acceptance that for normal, clinical, humanitarian and physiological reasons, pain should be anticipated and safely and effectively prevented and controlled in all age groups.

In present study two regional techniques, Penile and Caudal blocks, were compared for their potential of pain relief, complications and any other aspect. Local anesthetic Bupivacaine was selected for its prolonged action, safety and low cost. Both anesthetic techniques proved to be effective, safe, simple and economical. The side effects were minimal and were mere exaggeration pharmacological action of local anesthetic which were self limiting. Caudal block required more acumen and time when compared with penile block although both were effective and worthwhile in relieving pain of circumcision. Opioids could have been added to local anesthetic in caudal block to prolong the analgesia. The techniques of penile block involved minimal volume of local anesthetic thereby reducing the chances of local anesthetic toxicity and haematoma formation. Caudal

block, however, provide more complete analgesia.

Pain assessment has always been tricky as it is a subjecting feeling and difficult to measure by any gauge especially in children. In this study the ten point scoring system (Table I) originally employed by Broadman and Hanalla[4,5] for pediatric pain assessment was used with certain degree of success. It has been in various similar studies. As evident of the table this system indicates timing of rescue analgesia.

The result of study have shown great promise in controlling post circumcision pain in children by these techniques without producing major toxicity due to drug or technique. These regional anesthetic techniques obviate the need for repeated intra muscular injections in children, in which post operative bleeding can be a dreadful complication due to agitation. The analgesia achieved was also welcomed by the parents and nursing staff.

Among complication (Table VI)which did not warrant any intervention only disturbance of balance was quite significantly associated with caudal block. Incomplete analgesia should be viewed in light of difficulty in assessment of pain in small children. High incidence of delayed voiding was not a surprise considering side of surgery.

CONCLUSIONS

Both penile and caudal blocks are effective in controlling postoperative pain of circumcision in children. These blocks also reduce the requirement of systemic analgesia. Penile block is a simpler of the techniques. Complication rate is acceptable in both and justify their use in every child undergoing circumcision.

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Hope is the dream of a working man

Anonymous

CORRECTION

The amendment of the Professional Vol:11, No.04 (Prof-857) page 466 are as under;

INCORRECT

ORIGINAL **PROF-857**

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