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Feasibility and Efficacy of Intraarticular Steroids (IAS) in Juvenile Idiopathic Arthritis (JIA)

Thirteen children with juvenile idiopathic arthritis (JIA) were treated with intraarticular steroid injection of triamcilonone acetonide as a day care procedure. More than half (53.4%) the children were free of pain, limp and NSAID's use, with improvement in functional score at 12 weeks. No side effects were reported during the period of the study.

Key words: *Intraarticular Steroids (IAS), Juvenile Idiopathic Arthritis (JIA), Pain, Functional score, Resource poor setting,*

Intraarticular steroid (IAS) administration is a well-established mode of therapy for children with chronic arthritis(1,2). This study was undertaken to determine the feasibility, safety, efficacy and outcome of IAS in children with Juvenile Idiopathic Arthritis (JIA) on ambulatory basis with conscious sedation, in a restricted resource setting.

Children diagnosed with oligoarticular/polyarticular JIA, unresponsive (determined by joint swelling or effusion, or the limitation of range of motions, tenderness or pain on motion, or warmth) to 12 weeks of daily oral naproxen (15-20mg/kg/day) and/or weekly oral methotrexate (10 mg/m²/week) were enrolled in the study after obtaining informed written consent.

Children <6 years of age were given sedation with midazolam (0.1mg/kg/dose) and ketamine (1mg/kg/dose) prior to the procedure. Continuous pulse oximetry, heart rate, respiratory rate and non-invasive blood pressure monitoring was done during the procedure, and then every 15 minutes till

the child was awake and fully conscious. Older children were given IAS under local anesthesia.

The joints were injected with triamcinolone acetonide (0.5-1mL, 20-40mg) using standard technique(3). The parent and child were instructed to keep the movement in the particular joint to the least possible for next 24 hours. Children enrolled in the study were evaluated for 6 outcome measures at 0, 6, and 12 weeks: pain scale (0-10)(4); functional score (0-3) questionnaire, with the score for the desired task given as follows: without any difficulty 0, with some difficulty 1, with much difficulty 2 and unable to do 3(5); limp; limb length, mid-thigh and mid-leg circumference (affected lower limbs) at baseline and repeated at 12 weeks, and NSAID use.

Thirteen children with JIA (12, oligoarticular and 1 polyarticular) were included. The mean age of the study population was 8±3.38 years (range 2-12 years). Boys (*n*=6, mean age 10.16±0.89 years) and girls (*n*=7, mean age 6.28±3.42 years) with the mean age of onset of JIA was 6.67±3.19 years (range 1-11 years) were enrolled. Eighteen joints were injected in these patients (13 knee, 3 ankle and 2 elbow joints). Two patients had uncontrolled arthritis and were termed failure of IAS trial at 6 week visit, and subsequently taken off the study. Four children were lost to follow-up at the end of 12 weeks study period.

All the patients who responded to treatment showed significant improvement in pain and functional scores (**Table I**). NSAID use at the

TABLE I OUTCOME PARAMETERS ON JIA PATIENTS GIVEN INTRAARTICULAR STEROIDS

Outcome	0 wks (n=13)	6 wks (n=10)	12 wks (n=7)
<i>Pain scale (0-10)</i>	5.46±2.03	1.85±3.08	0
<i>Functional score (0-3)</i>			
Dressing and grooming	0.23±0.59	0.1±0.31	0
Arising	2.53±1.94	0.3±0.67	0
Eating	0.76±1.92	0.9±2	0.42±1.13
Walking	2.07±1.49	0.5±0.84	0
Hygiene	0.53±0.87	0.3±0.67	0.14±0.37
Reach	0.53±1.33	0.5±1.58	0
Grip	0.61±2.21	0.8±2.52	0
Activities	3.46±3.99	2.3±4.94	0.28±0.48
<i>Limping, n(%)</i>	12 (92%)	2 (20%)	0
<i>NSAID use, n(%)</i>	13 (100%)	2 (20%)	0
<i>Bulk of muscles (cm)</i>			
Mid-thigh circumference	29.4±5.7		30.14±6.12
Mid-leg circumference	21.4±3.8		21.7±4.38
<i>Lower limb length (cm)</i>			
Upper leg	38.1±9.15		37.8±10.14
Lower leg	29.5±6.51		29.28±7.56

initiation of the study was 100%(13), 20%(2) at 6 weeks and none of the patient reported NSAID drug use at 12 weeks, except the ones who failed IAS trial (n=2). None of the study patients had a post-injection flare for a period of 6 months. Our results are similar to that reported by Neidel, *et al.* (1).

Our study demonstrated that it is feasible and safe to give intraarticular steroid injection in JIA patients of all age group by pediatrician using sedation with midazolam and ketamine without significant side effect. Small patient population and a short follow-up of 3 months were limitation of the study.

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