Efficacy of Clonidine as an Adjuvant to Lignocaine Infiltration for Prolonged Analgesia After Episiotomy

INTRODUCTION: Episiotomy is the surgical cut made through the perineum during labour to make the vagina larger with the intention of easing the birth of the child. Post delivery, the pain of episiotomy has been described by the mothers as throbbing, pulsating, stinging or burning.

Lignocaine infiltration anaesthesia has been the traditional mainstay worldwide before performing the episiotomy. After the birth of the baby, usually NSAIDs are prescribed to the new mother for pain relief 3-4 times a day.

Clonidine, an alpha 2 adrenergic receptor agonist, has been the focus of interest for its analgesic, sedative, sympatholytic and anaesthetic sparing effects and haemodynamic stabilizing properties. It augments the action of local anaesthetics in regional blockades by interrupting the neural transmission of painful stimuli in A delta and C fibres as well as augments the blockade of local anaesthetic agents by increasing the conductance of K+ ions in nerve fibres. It also exerts a vasoconstricting effect on smooth muscles, which results in decreased absorption of the local anaesthetic drug and eventually prolongs the duration of analgesia.

Keeping the pharmacological profile of clonidine in mind, we hypothesized that the addition of clonidine at 1 mcg/kg as an adjuvant to 2% lignocaine for infiltration along the line of episiotomy incision would enhance the quality of analgesia and prolong the duration of pain relief and thereby decrease the requirement of NSAIDs by the mother.

The chief aim of this study was to compare the infiltration of 2% lignocaine with clonidine and infiltration of 2% lignocaine alone for pain relief after episiotomy with respect to the analgesia at the time of incision, while sitting, walking and squatting after delivery, the time when rescue analgesic was required and the total dose of analgesics required after episiotomy.

METHODS: The permission from the institute’s ethical committee was sought after submitting the protocol of research methodology to the appropriate authorities. The study was a prospective, double-blind, randomized, controlled trial. 60 female patients, aged 20-40 years, of American Society of Anaesthesiologists (ASA) grade I and II, scheduled for full term vaginal delivery were enrolled in the study. A written informed consent was obtained from all the patients after explaining to them the nature of the study.

The exclusion criteria were patient refusal, ASA grade III and IV, patients on anti-platelet drugs and coagulopathies, severe PIH, seropositive patients, any infection at episiotomy site and lignocaine sensitive patients.

A 20G I.V. access was established for all the patients in the labour room. Patients were randomly allocated into two equal groups of 30 each: lignocaine group (L) and lignocaine-clonidine group (C). Group L received 7 ml of 2% lignocaine while Group C received 7 ml of 2% lignocaine to which 1 mcg/kg of clonidine was added. Haemodynamic parameters and pain scoring using the VAS were monitored. At the end of the research project, the data was compiled systematically and analyzed using appropriate statistical tests by a statistician. Value of p< 0.05 was considered significant and p< 0.001 as highly significant.

ABSTRACT: Background: Clonidine, an alpha 2 adrenergic receptor agonist, has been used as an adjuvant with local anaesthetic agents to prolong the duration of peripheral nerve blocks.

Objectives: The purpose of our study was to compare the efficacy of clonidine 1 mcg/kg with 2% lignocaine and 2% lignocaine alone in prolonging the duration of analgesia after episiotomy with respect to various activities like sitting, walking and squatting.

Methods: A total of 60 female patients, aged 20-40 years, of ASA grade I and II, scheduled for full term vaginal delivery were assigned into two groups of 30 each: lignocaine group (L) and lignocaine-clonidine group (C). Group L received 7 ml of 2% lignocaine while Group C received 7 ml of 2% lignocaine to which 1 mcg/kg of clonidine was added. Haemodynamic parameters and pain scoring using the VAS were monitored. At the end of the research project, the data was compiled systematically and analyzed using appropriate statistical tests by a statistician. Value of p< 0.05 was considered significant and p< 0.001 as highly significant.

Results: Duration of analgesia after episiotomy was significantly prolonged in Group C as compared with Group L with respect to various activities.

Conclusion: Clonidine when added to 2% lignocaine for infiltration before episiotomy clearly improves the quality and prolongs the duration of sensory analgesia obtained.
RESULTS: All the demographic characteristics like age, weight and ASA grade were comparable in both the groups and were found to be statistically non-significant (p>0.05).

Table 1:

| Characteristics | Group L (n=30) | Group C (n=30) |
|-----------------|----------------|----------------|
| Mean age (years)| 24.6 ± 2.41    | 23.8 ± 2.31    |
| Weight (kg)     | 52 ± 2.33      | 54 ± 2.53      |

There was significant increase in the duration of analgesia during different activities like sitting, walking and squatting, in Group C as compared with Group L. The analgesia during sitting lasted for (20.50 ± 1.456) hours in Group C as compared with (9.10 ± 0.923) hours in Group L. The analgesia during walking lasted for (20.53 ± 1.456) hours in Group C as compared with (8.90 ± 0.845) hours in Group L. Similarly, the analgesia during squatting lasted for (19.03 ± 1.903) hours in Group C as compared with (8.80 ± 0.925) hours in Group L. The difference in the duration of analgesia between the two groups during the various activities was statistically significant (p<0.001).

Table 2:

| Activities          | Group L (n=30) | Group C (n=30) |
|---------------------|----------------|----------------|
| Pain during sitting | 9.10 ± 0.923   | 20.50 ± 1.456  |
| Pain during walking | 8.90 ± 0.845   | 20.53 ± 1.456  |
| Pain during squatting| 8.80 ± 0.925   | 19.03 ± 1.903  |

CONCLUSION: Clonidine, when used as an adjuvant with 2% lignocaine for infiltration before episiotomy during normal labour, clearly improves the quality and prolongs the duration of sensory analgesia obtained.

It nearly eliminates the requirement of NSAIDs by the exhausted mother and promotes early and effective establishment of breast feeding of colostrum. The unnecessary passage of drugs to the neonate through breast milk and may have harmful effects on the newborn. They also have to be used very cautiously in parturients with hypertension, diabetes, toxemia or detached renal functions.

The mother finds it difficult to sit and walk but sitting on the toilet is worse. This starts off a vicious cycle of constipation requiring laxatives, stool softeners etc. All this overshadows the benefits of normal delivery.

No side effects (nausea, vomiting, dry mouth etc.) were reported during the first 24 hours in the post delivery period in both the groups.

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