RESEARCH ARTICLE

Pethidine in Comparison to Nonsteroidal Anti-Inflammatory Drugs in Controlling Pain during Labour in Multigravida, A Double Blind Randomized Controlled Trial

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Abstract

Background: Women undergoing normal delivery experience pain with a variable degree. Paracetamol which is acetaminophen drug is one of the used drugs with a high safety and effectiveness against pain. Researches that addressed the potency of paracetamol as an analgesic medication in labour and cesarean sections revealed good results.

Methods: A randomized controlled study which was conducted at Algezeera and Almarwa hospital, Kasralainy hospital and Ainshams University, Egypt in the period from February 2017 till August 2018 on multigravida women undergoing normal vaginal delivery that were randomly divided into 2 groups, one received pethidine and the second received non-steroidal anti-inflammatory drugs (NSAID) (Diclofenac).

Results: The present study revealed that there was a statistically significant difference between pethidine and NSAID in VAS score after 15 minutes with better analgesic effect in pethidine group revealing a more rapid onset of action in pethidine. In the current study, there was no statistically significant difference between pethidine and NSAID in VAS score after 30 minutes, one hour, 2 hours between the 2 groups.

Conclusion: NSAID (Diclofenac) have comparable results in pain control in active phase of labour when compared to pethidine with more rapid onset of action of pethidine.

Introduction

Women undergoing normal delivery experience pain with a variable degree [1]. Paracetamol which is acetaminophen drug is one of the used drugs with a high safety and effectiveness against pain. Researches that addressed the potency of paracetamol as an analgesic medication in labour and cesarean sections revealed good results [2].

With the process of labour, the resultant pain causes ACTH and beta endorphine secretion [3].

Pethidine is meperidine hydrochloride which is a synthetic opiate agonist that is related to phenylepiperidine group and is one of the most widely administered drugs during labour [4].

Paracetamol is one of the readily available and commonly given medications as an analgesic antipyretic agent [5].

In this study, we focused on the pain control achieved by pethidine in comparison to NSAIDs.

Objective

To compare the efficacy of NSAIDs (Diclofenac) in comparison to pethidine in controlling pain during active phase of labour.

Patient and Methods

A randomized controlled study which was conducted at Algezeera and Almarwa hospital, Kasralainy hospital and Ainshams University, Egypt in the period from February 2017 till August 2018

200 pregnant ladies who are multigravida and coming for normal vaginal delivery were enrolled and randomly divided into 2 groups, group one received pethidine during active phase of labour and group two received NSAID (Diclofenac).

Then VAS scoring was made in comparison to zero point before starting the medication for pain control, then pain was assessed using VAS 15 minutes after receiving medication, after 30 minutes, after one hour and after 2 hours

And VAS was recorded for each woman in both groups and the outcome assessor analyzed these results.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research bioethical committee and
Table 1: Shows a comparison between pethidine and NSAIDs women regarding demographic data

<table>
<thead>
<tr>
<th></th>
<th>Pethidine</th>
<th>NSAIDs</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number 100</td>
<td>24.1 +/- 4.1</td>
<td>24.4 +/- 4.5</td>
<td>0.741</td>
</tr>
<tr>
<td>Mean</td>
<td>31.5 +/- 3.4</td>
<td>31.8 +/- 2.5</td>
<td>0.617</td>
</tr>
<tr>
<td>Cervical dilatation</td>
<td>4.6 +/- 0.9</td>
<td>4.7 +/- 0.8</td>
<td>0.591</td>
</tr>
</tbody>
</table>

Table 2: Demonstrates a comparison between pethidine and NSAIDs groups as regard visual analogue scale

<table>
<thead>
<tr>
<th>Time after medication</th>
<th>NSAIDS</th>
<th>Pethidine</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS at 0 time</td>
<td>9.08 +/- 0.72</td>
<td>9.1 +/- 0.68</td>
<td>0.521</td>
</tr>
<tr>
<td>NSAIDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS after 15 Minutes</td>
<td>4.81 +/- 0.68</td>
<td>7.93 +/- 0.75</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Pethidine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS after half an hour</td>
<td>4.2 +/- 0.35</td>
<td>4.72 +/- 0.63</td>
<td>0.059</td>
</tr>
<tr>
<td>NSAIDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS after one hour</td>
<td>5.1 +/- 0.61</td>
<td>5.2 +/- 0.63</td>
<td>0.752</td>
</tr>
<tr>
<td>Pethidine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS after 2 hours</td>
<td>6.23 +/- 0.41</td>
<td>6.45 +/- 0.83</td>
<td>0.282</td>
</tr>
</tbody>
</table>

Discussion

In the present study, there was no statistically significant difference between both study groups as regard age, BMI and cervical dilatation with P value > 0.05 (Table 1).

The results of this study did not show a statistically significant difference in the maternal and fetal side effects (Table 2).

In the present study, the VAS in women received NSAIDS when comparing the VAS in the zero point at which medication started to VAS after 15 minutes, after 30 minutes, after one hour and after 2 hours showed a statistically significant difference in pain control with P value < 0.001 (Table 3).

In the current study, there was no statistically significant difference between both study groups as regard age, BMI and cervical dilatation with P value > 0.05.

In the current study, the comparison between both groups as regard the effect of analgesia from both drugs during delivery showed that the Visual analogue scale (VAS) which was made at zero point (at start of study), after fifteen minutes, after 30 minutes, after one hour and after 2 hours from drug intake revealed that there was no statistically significant difference between both drugs after half an hour, after one hour and after 2 hours but the only statistically significant difference between both groups was after 15 minutes from receiving the injection with better pain control with pethidine (Table 2).

A previous research made by Keskin, etal. showed that there was a better analgesic controlling effect with a statistically significant results of pethidine than tramadol [6].

A previous study made by Elbohoty, etal. revealed that paracetamol is comparable to pethidine in pain control in active phase of labour [7].

In the present study, the VAS in women received NSAIDS when comparing the VAS in the zero point at which medication started to VAS after 15 minutes, after 30 minutes, after one hour and after 2 hours showed a statistically significant difference in pain control with P value < 0.001 (Table 4).

In the current study, there was a statistically significant difference between pethidine and NSAID drugs in VAS score after 15 minutes with better analgesic effect in pethidine group revealing a more rapid onset of action in pethidine.

In the current study, there was no statistically significant difference between pethidine and NSAID drugs in VAS score after 30 minutes, one hour, 2 hours between the 2 groups.
Blockade of the pro-inflammatory mediators by NSAIDs will reduce the inflammatory response (and subsequent pain). Classically, their effect is anti-inflammatory, analgesic, and antipyretic because of the direct inhibition of prostaglandin production [8].

A previous study made by Ali F. Al-Assadi who made a comparative research on diclofenac versus placebo normal saline injection in pain control and revealed that Diclofenac was found to be a suitable analgesic for pain relief during the first stage of labour, it was found to be effective, easily administered and lack serious maternal and fetal side effects [9].

A previous study made by Shivamurthy H M, et al. who made a study to compare the effectiveness of diclofenac in comparison to tramadol in pain control in labour, showed that rectal diclofenac suppositories should be further promoted, for pain relief, in women following episiotomy [10].

To our knowledge there is limited data in comparing pethidine to diclofenac in pain control during active phase of labour.

**Conclusion**

NSAIDs (Diclofenac sodium) are effective in reducing pain during active phase of labour and have a comparable result in pain control in active phase of labour when compared to pethidine with more rapid onset of action of pethidine.

**Recommendation**

Future researches are needed to compare the analgesic effect of both drugs in pain relief during labour.

**Acknowledgments**

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**Disclosure statement**

No potential conflict of interest was reported by the authors.

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**Author Contributions**

The team of authors participated in this study in its aspects with:

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work.
- Drafting the work or revising it critically for important intellectual content.
- Final approval of the version to be published.
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

**References**


