

Evaluation of the effectiveness of gabapentin in the management of postoperative pain after total hip arthroplasty

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Abstract

Background: It was well reported that gabapentin has a role in the management of neuropathic pain. However, substantial evidence for the same was sparse.

Objective: The present study was undertaken to evaluate the effectiveness of gabapentin in the management of postoperative pain after total hip arthroplasty.

Materials and methods: A total of 50 patients diagnosed with sepsis and aged more than 18 years including both males and females were part of the study after obtaining the written, voluntary informed consent. Unwilling participants were excluded from the study. Patients with any severe complications were also excluded from the study.

Results: The majority of the participants were males with 60 % and females were 40%. The majority of patients were having pain scores of 7-9 before the intervention in the control group. The majority of the patients are in pain scores of 7-9 after ibuprofen in the control group. Table no 5 presents the distribution of the intervention group participants according to the pain scores after intervention. The majority of the patients were in pain scores of 1-3 after the administration of gabapentin.

Conclusion: The study results confirm that gabapentin has a significant effect on the management of pain after the surgery of the knee and hip. The study recommends further detailed study in this area to recommend gabapentin in the management of pain.

Keywords: Gabapentin, pain, knee and hip surgery

Introduction

Patients with knee and hip dysfunction have to get relief only through surgery. Total knee and hip arthroplasty are the most important surgery in these patients with knee and hip functional impairment ^[1]. A large number of patients were undergoing this surgery and getting relieved from the knee and hip dysfunction ^[2]. However, many of these patients are suffering from post-operational pain after the surgery ^[3]. Due to this pain, there may be a long stay at the hospital needed to manage the pain or there may be readmission in a few cases ^[4-6].

Hence, management of pain becomes a crucial issue after the surgery. The drugs which are used earlier like morphine has side effects such as nausea, vomiting, and even sedation [7]. However, the drugs like gabapentin have minimum side effects. The molecular structure of this drug is similar to that of GABA which is an inhibitory neurotransmitter in the brain [8]. It was well reported that gabapentin has a role in the management of neuropathic pain. However, substantial evidence for the same was sparse. Hence, the present study was undertaken to evaluate the effectiveness of gabapentin in the management of postoperative pain after total hip arthroplasty.

Materials and methods

Study design: Observational study.

Study participants: A total of 60 patients who underwent knee and hip arthroplasty were included in the study. Patients from 50 to 65 years of age group and both males and females were part of the study after obtaining the written, voluntary informed consent. Unwilling participants were excluded from the study. Patients with any severe complications were also excluded from the study.

Methods: After the recruitment, patients underwent a thorough physical examination. Then the demographic data was obtained followed by detailed data collection. After recording the baseline pain scores, the participants were randomly grouped into control and intervention groups with 30 participants in each group. Ibuprofen was administered to the control group whereas gabapentin was administered to the intervention group for 5 days after the surgery. Post-intervention pain scores were recorded in both groups. Visual analogue scale was used to record the pain scores.

Ethical considerations: The study was approved by the institutional human ethical committee. Voluntary informed consent was obtained from all the participants.

Statistical analysis: Data was analyzed using SPSS 20.0. Student t-test was administered to observe the significance of the difference between the groups.

Results: Results were presented in Tables no 1 and 2. Table no 1 presents the gender distribution of the participants. The majority of the participants were males with 60 % and females were 40%. Table no 2 presents the levels of pain scores in the control group participants before the intervention. The majority of patients were having pain scores of 7-9 before the intervention in the control group. Table no 3 presents the distribution of the intervention group participants according to the pain scores after intervention. The majority of the patients were in pain scores of 7-9. Table no 4 presents the distribution of the control group participants according to the pain scores after intervention. The majority of the patients are in pain scores of 7-9 after ibuprofen in the control group. Table no 5 presents the distribution of the intervention group participants according to the pain scores after intervention. The majority of the patients were in pain scores of 1-3 after the administration of gabapentin.

Table 1: Distribution of the participants as per the gender

Gender	Number of participants (n=60)
Males	36(60%)
Females	24(40%)

Data were presented as frequency and percentage.

Table 2: Distribution of the control group participants according to the pain scores before intervention

Pain scores	Number of participants (n=30)
0	0 (0%)
1-3	4 (13.3%)
4-6	4 (13.3%)
7-9	20 (66.6%)
10	2 (6.66)

Data were presented as frequency and percentage.

Table 3: Distribution of the intervention group participants according to the pain scores before intervention

Pain scores	Number of participants (n=30)
0	0 (0%)
1-3	2 (6.6%)
4-6	4(13.3%)
7-9	24 (80%)
10	0 (0)

Data were presented as frequency and percentage.

Table 4: Distribution of the control group participants according to the pain scores after intervention

Pain scores	Number of participants (n=30)
0	0 (0%)
1-3	8 (26.6%)
4-6	8 (26.6%)
7-9	14 (46.6%)
10	0 (0%)

Data were presented as frequency and percentage.

Table 5: Distribution of the intervention group participants according to the pain scores after intervention

Pain scores	Number of participants (n=30)
0	4 (13.3%)
1-3	10 (33.3%)
4-6	9(30%)
7-9	7 (23.3%)
10	0 (0)

Data were presented as frequency and percentage.

Discussion

It was well reported that gabapentin has a role in the management of neuropathic pain. However, substantial evidence for the same was sparse. Hence, the present study was undertaken to evaluate the effectiveness of gabapentin in the management of postoperative pain after total hip arthroplasty. The majority of the participants were males with 60 % and females were 40%. The majority of patients were having pain scores of 7-9 before the intervention in the control group. The majority of the patients were in pain scores of 7-9. The majority of the patients are in pain scores of 7-9 after ibuprofen in the control group. The majority of the patients were in pain scores of 1-3 after the administration of gabapentin. In recent times many studies reported the importance of gabapentin in the management of pain [8]. Further, gabapentin has been used in the management of pain in several surgeries [9-12]. One of the important advantages of gabapentin is that it can manage both acute and chronic

pain^[13]. The mechanism of action of the gabapentin was expected by reducing the production of the interleukins, especially IL-6. By reducing IL-6 the pain can be relieved^[14]. The present study results are in accordance with earlier studies as we have observed improvement in the pain relief after the administration of gabapentin. However, the study was conducted at one center only. So, results cannot be generalized. Hence, the study suggests multi center studies to be undertaken to suggest implementation of gabapentin in the management of post-surgical pain management in patients underwent knee and hip surgeries.

Conclusion

The study results confirm that gabapentin has a significant effect on the management of pain after the surgery of the knee and hip. The study recommends further detailed study in this area to recommend gabapentin in the management of pain.

Conflicts of interest: None declared.

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