Original Research Article

A Study of incidence onset nature location and duration of post dural puncture headache with quicke's needle no 22 and 26 and whitacre needle no 25

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Abstract

Background: The problem of post dural puncture headache is not common in all patients who received lumbar puncture for diagnostic or anaesthetic reasons and but found to be more common after Caesarean section in young patients. **Aims and Objective:** To Study incidence onset nature location and duration of post dural puncture headache with Quicke's needle no 22 and 26 and whitacre needle no 25. **Methodology:** The present study was carried out at Dr. D .Y. Patil Medical College Pimpri, Pune. The study was carried out randomly chosen 300 patients over period of January 2016 – December 2017. The study material were both male (n=150) and Female (n=150), of age group of 20 to 40 years. **Group A:** Group AI-22 gauge Quincke's needle, Group AII-26 gauge Quincke's needle, Group AIII-25 gauge Quincke's needle. **Group B:** Group BI-22 gauge Quincke's needle, Group BII-26 gauge Quincke's needle, Group BIII-25 gauge Quincke's needle. All the patients were subjected to spinal analgesia. The statistical analysis was done by SPSSS 19 version software. **Result:** In our study we have seen that the incidence of post dural puncture headache in group AII was 12%, in group AII was 6%, and in group AIII was 0%. While the incidence of post dural puncture headache in group BI was 8%, in group BII was 4% and group BIII it was 0%. group BI and BIII were compared, the incidence was statistically significant (p=0.04). The nature of headache was throbbing in nature in 6(12%) patients in group AI,3(6%) patients in Group AII, 3(6%) patients in group BI and 2(4%) patients in group BII. Dull and continous type of headache was found in 1(2%) patient of group BI. While patients of group AIII and BIII had no headache. The location of headache was asked to all patients of both the group. It was frontal in 4(8%) patients of Group AI, in 3(6%) patients of Group AII, in 3(6%) patients of group BI and 2(4%) patients of group BII. Occipital headache was found in 2(4%) patients of group AI and generalized type of headache was found in 1(2%) patients of group BI. The average duration of headache in all the groups was as follow. In group AII it was 2±0.63, in group AII it was 2.75± 0.5, BI was 2.75± 0.5, in group BI, it was 2.75± 0.5 and in group BII, it was 2.5±0.7. **Conclusion:** It can be concluded from our study that the post dural puncture headache was more common in female and the size of needle significantly associated specially in the females.

Key Words: Post dural puncture headache (PDPH), Quicke's needle, whitacre needle**.**

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INTRODUCTION

The problem of post dural puncture headache is not common in all patients who received lumbar puncture for diagnostic or anaesthetic reasons and but found to be more common after Caesarean section in young patients.[1,2] In the past refined and thicker spinal needles were used so the incidence of PDPH was high.[2,3,4] But since last 15 years more refined and thinner needles of 24 G to 28 G have been used more often and the incidence of PDPH is grossly reduced to less than 3 to 5%.[5,6,7] The majority of headaches in the postpartum period may not

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be reported either because they are assumed to be normal in that situation, or because the patient may be discharged from hospital before the onset of the headache. A prospective study looking at 985 parturients found that 381 patients (39%) complained of headache. The majority of headaches were migraine, tension-type or of undetermined causes; 15 were incapacitating and 18 were post-dural puncture.[3] Migraine has been found to recur or appear for the first time in the postpartum period.[4] Stella *et al* looked at 95 women who were hospitalized with headache >24 h postpartum over a five-year period. Again, tension-type/migraine comprised the most common cause (47%), followed by preeclampsia/eclampsia (24%) and PDPH (16%). Focal neurological deficits necessitated cerebral imaging in 22 patients, 15 of these had abnormal findings.[5]

MATERIAL AND METHODDS

The present study was carried out at Dr. D .Y. Patil Medical College Pimpri, Pune The study was carried out randomly chosen 300 patients over period of January 2016 – December 2017. The study material were both male (n=150) and Female (n=150), of age group of 20 to 40 years, belonging to ASA grade I to II, posted for elective surgeries below umbilicus. Each patients evaluated pre-anesthetically. Monitoring was done as per the standard protocol. Patients were assigned to group A and group B, 1500 patients each. Group A consist of Femlae patients posted for Abdminal sterilization and group B consist of Male patients posted for hernia repair under spinall analgesia. Group A and B were further subdivided into 3 groups of 50 patients each according to the type and size of needle used. **Group A-** Group AI-22 gauge Quincke's needle, Group AII-26 gauge Quincke's needle, Group AIII-25 gauge Quincke's needle. **Group B-** Group BI-22 gauge Quincke's needle, Group BII-26 gauge Quincke's needle, Group BIII-25 gauge Quincke's needle. All the patients were subjected to spinal analgesia. The statistical analysis was done by SPSSS 19 version software.

RESULT

Table 1: Showing incidence of post dural puncture headache in post operative period

Groups	Incidence of No. Patients
AI	06
AII	03
AIII	00
BI	04
BII	02
BIII	00

The incidence of post dural puncture headache in group AII was 12%, in group AII was 6%, and in group AIII was 0%. While the incidence of post dural puncture headache in group BI was 8%, in group BII was 4% and group BIII it was 0%.

Table 2: Showing comparison of incidence of post dural puncture headache in both the groups

Comparison group	P-value	Statistical significance
AI-AII	0.24	Not Significant
AII-AIII	0.12	Not Significant
AI-AIII	0.01	Not Significant
BI-BII	0.40	Not Significant
BII-BIII	0.16	Not Significant
BI-BIII	0.04	Significant

When incidence of post dural puncture headache was compared in the same group i.e. Group AI and AII, it was statistically not significant (p=0.24), group AII and AIII, it was not significant (p=0.12), while when the group AI was compared to group AIII, it was statistically significant (p=0.01). When group B was compared; in group BI and group BII, the incidence of post dural puncture headache was statistically not significant (p=0.4); in group BII and BIII, it was statistically not significant (p=0.16) but when group BI and BIII were compared, the incidence was statistically significant (p=0.04)

Table 2: Showing comparison of post-dural puncture headache in all sub groups

Comparison group	p-value	Statistical significance
AI-BI	0.50	Not significant
AII-BII	0.60	Not significant
AIII-BIII	Nil	Nil

Comparison of post dural puncture headache in group AI to BI; AII to BII and AIII to BIII were done. It was found that when AI was compared with BI, it was statistically not significant (p=0.5), group AII with BII also statistically not significant (p=0.60), and group AIII with BIII as there was no incidence of post dural puncture headache when whitacre needle was used in both the groups, the significance is Nil.

Table 3: Showing nature of headache

Nature of Headache	No. of Patients					
	Gr.I	Gr.II	Gr.III	Gr.BI	Gr.BII	Gr.BIII
Throbbing	6(12%)	3(6%)	0	3(6%)	2(4%)	0
Dull and continuous	0	0	0	1(2%)	0	0
Diffused	0	0	0	0	0	0
Sharp shooting	0	0	0	0	0	0

The nature of headache was throbbing in nature in 6 (12%) patients in group AI, 3(6%) patients in Group AII, 3 (6%) patients in group BI and 2 (4%) patients in group BII. Dull and continous type of headache was found in 1 (2%) patient of group BI. While patients of group AIII and BIII had no headache.

Table 4: Showing location of headache

Region	No. of Patients					
	Gr.I	Gr.II	Gr.III	Gr.BI	Gr.BII	Gr.BIII
Frontal	4(8%)	3(6%)	0	3(6%)	2(4%)	0
Parietal	0	0	0	1(2%)	0	0
Occipital	2(4%)	0	0	0	0	0
Generalized	0	0	0	1(2%)	0	0

The location of headache was asked to all patients of both the group. It was frontal in 4 (8%) patients of Group AI, in 3 (6%) patients of Group AII, in 3 (6%) patients of group BI and 2 (4%) patients of group BII. Occipital headache was found in 2 (4%) patients of group AI and generalized type of headache was found in 1 (2%) patients of group BI.

Table 5: Showing average duration of headache in various groups

Groups	Mean duration in days
AI	2±0.63
AII	2.75± 0.5
AIII	0
BI	2.75± 0.5
BII	2.5±0.7
BIII	0

The average duration of headache in all the groups was as follow. In group AII it was 2±0.63, in group AII it was 2.75± 0.5, BI was 2.75± 0.5, in group BI, it was 2.75± 0.5 and in group BII, it was 2.5±0.7.

DISCUSSION

Regarding PDPH associated with neuraxial techniques, it has been established beyond doubt that dural puncture with larger needles is associated with a greater incidence of PDPH. By using progressively smaller needles, the incidence of headache following dural puncture has been brought down from 66% in the year 1898 using 17 and 18 G needles,[11] to 33-36% with 22 G Quincke needles [11,12,13] and 0.4 to 20% using smaller Quincke needles of 24 to 32 G in different studies.[15,16,17] Changing the design of needle tips from cutting Quincke needles to pencil-point, so-called atraumatic type such as Whitacre, Sprotte and Atraucan needles further reduced the incidence to 0-10%. [19,20] A head-to-head comparison of Quincke and pencil-point needles of the same size (27 G, 0.40 mm O.D.) found PDPH incidences of 8.1 and 1.9%; and a meta-analysis of 1131 patients gave a relative risk of developing PDPH of 0.38 (95% CI from 0.19 to 0.75) in the pencil-point group compared to the Quincke group.[21] A similar study comparing 27-gauge (0.41-mm) Whitacre and Quincke spinal needles in 529 non-obstetric patients having out-patient surgery found the incidence of PDPH in the Quincke group to be 2.70%, while in the Whitacre group it was only 0.37% ($P < 0.05$). [22] The use of smaller needles is, however, associated with greater technical difficulties, which in turn may lead to multiple attempts, leading to a higher incidence of PDPH.[23,24] Other risk factors for PDPH are female sex, younger age group and obstetric population, [25,26] but a prospective study of over 1000 young patients found a PDPH incidence of only 0.8% using 24 G Sprotte needles with a low incidence of puncture difficulties.[27] In our study we have seen that The incidence of post dural puncture headache in group AII was 12%, in group AII was 6%, and in group AIII was 0%. While the incidence of post dural puncture headache in group BI was 8%, in group BII was 4% and group BIII it was 0%. When incidence of post dural puncture headache was compared in the same group i.e. Group AI and AII, it was statistically not significant (p=0.24), group AII and AIII, it was not significant (p=0.12),while when the group AI was compared to group AIII, it was statistically significant(p=0.01). When group B was compared; in group BI and group BII, the incidence of post dural puncture headache was statistically not significant (p=0.4); in group BII and BIII, It was statistically not significant (p=0.16) but when group BI and BIII were compared, the incidence was statistically significant (p=0.04) Comparison of post dural puncture headache in group AI to BI; AII to BII and AIII to BIII were done. It was found that when AI was compared with BI, it was statistically not significant (p=0.5), group AII with BII also statistically not significant (p=0.60), and group AIII with BIII as there was no incidence of post dural puncture headache when whitacre needle was used in both the groups, the significance is Nil. The nature of headache was throbbing in nature in 6 (12%) patients in group AI,3(6%) patients in Group AII, 3(6%) patients in group BI and 2(4%) patients in group BII. Dull and continous type of headache was found in 1 (2%) patient of group BI. While patients of group AIII and BIII had no headache. The location of headache was asked to all patients of both the group. It was frontal in 4(8%) patients of Group AI, in 3 (6%) patients of Group AII, in 3(6%) patients of group BI and 2 (4%) patients of group BII. Occipital headache was found in 2 (4%) patients of group AI and generalized type of headache was found in 1 (2%) patients of group BI. The average duration of headache in all the groups was as follow. In group AII it was 2±0.63, in group AII it was 2.75± 0.5, BI was 2.75± 0.5, in group BI, it was 2.75± 0.5 and in group BII, it was 2.5±0.7.

CONCLUSION

It can be concluded from our study that the post dural puncture headache was more common in female and the size of needle significantly associated specially in the females.

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