ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 7, Issue – 1, February – 2022 , Page No. : 34 - 44

A Study of demographic profile of PDPH at tertiary care hospital - An observational study

[1]Hemant R Rane, Assistant Professor, Department of Anesthesiology, Institute of Kidney Diseases and Research Centre – Institute of Transplantation Sciences, Ahmedabad, Gujarat, India.

[2]Rajnish Kumar Nama, Associate Professor, Department of Anesthesiology, Institute of Kidney Diseases and Research Centre – Institute of Transplantation Sciences, Ahmedabad, Gujarat, India.

[3]Rajkiran B Shah, Professor, Department of Anesthesiology, Institute of Kidney Diseases and Research Centre – Institute of Transplantation Sciences, Ahmedabad, Gujarat, India.

Corresponding Author: Rajnish Kumar Nama, Associate Professor, Department of Anesthesiology, Institute of Kidney Diseases and Research Centre – Institute of Transplantation Sciences, Ahmedabad, Gujarat, India.

Citation this Article: Hemant R Rane, Rajnish Kumar Nama, Rajkiran B Shah, "A Study of Demographic Profile of Pdph at Tertiary Care Hospital - An Observational Study", IJMSIR- February - 2022, Vol – 7, Issue - 1, P. No. 34 – 44.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Neuraxial block is a preferred technique due to its numerous benefits over general anaesthesia, however PDPH still remains a common complication leading to significant morbidity and prolonged hospital stay. Age and gender are frequently associated patient related risk factors for development of PDPH. Many studies have conflicting results regarding the effect of age and gender on incidence of PDPH. The data of incidence of PDPH in local population at risk of PDPH is important as it would enable the anaesthesiologist to more accurately discuss the options of anaesthesia and weigh risk and benefits.

Objective: Our primary objective is to estimate the incidence of PDPH with respect of age and gender of the patient.

Methods: Patients from 18-65 year of both genders, scheduled for surgeries below the abdomen under spinal anaesthesia with 25 G Quincke's needle were enrolled in the study. Patients were divided in four groups according to age, group Y (20 to 35 yr.) and group O (35 to 65 yr.) and gender in male and female. After surgery all patients were evaluated at interval of 12 hours till 72 hours for the presence, severity and characteristics of headache. Headache with postural association was considered as PDPH with severity scale of I to IV.

Results: Out of 186 patients 8.06% patients developed PDPH. 12 out of 99 (12.12%) in young age group and 3 out of 87 (3.44%) patients in old age group developed PDPH ($p<0.05$). Out of 98 male and 88 female patients 4 male (4.08%) and 11 female (12.5%) develop PDPH which is 3 times more than male ($p<0.05$). The severity of headache varies between Grade II to Grade III. All the patients who developed PDPH responded well to the treatment.

Conclusion: Incidence of PDPH is high in young and female patients. Young age and female gender are predisposing factors for development of PDPH.

Keywords: PDPH, Neuraxial block, Spinal Anaesthesia, Pregabalin.

Introduction

Neuraxial block is widely used technique for surgeries of lower abdomen and below. Post Dural Puncture Headache (PDPH) is one of the common and dreaded complications of lumbar punctures since the introduction of spinal anaesthesia, leading to significant patient distress and morbidity, prolonged hospital stay and increased cost [1]. It is debilitating to the patients and can significantly interfere with the functional capacity and post-operative wellbeing. The incidence of PDPH has been reported from 1.2% to 46% and may be as high as 78% with unintentional puncture with large bore needle, whereas the reported incidence of PDPH with 25G Quincke spinal needle range from 7.8% to 37.2 % [2-5].

Over the past few decades many risk factors for PDPH have been identified including pregnancy, young age, female gender, previous history of PDPH, bevel orientation to the dural fibers, type & size of needle, needle tip shape, number of lumbar puncture attempted, median versus paramedian approach and clinical experience of the person operating the procedure [2-7]. In this context smaller gauge and pencil point needle have been developed to reduce the risk of PDPH. Despite of all advances there is always a concern of increase risk of persistent and debilitating PDPH remains. Many studies have conflicting results regarding the effect of age and gender on incidence of PDPH. The data of incidence of PDPH in local population at risk of PDPH is important as it would enable the anaesthesiologist to more accurately discuss the options of anaesthesia and weigh risk and benefits.

The aim of our study is to estimate the incidence of post dural puncture headache in a tertiary care hospital in Ahmedabad with respect to the age and gender of the patient.

Material and methods

After approval from institutional ethics committee and informed written consent, total 186 patients of ASA risk I/II, from age 18 - 65 year of both genders, scheduled for surgeries below the abdomen under spinal anaesthesia were enrolled in the study. The procedure was explained to all the patients during their preoperative visit. Patients with history of chronic headache, past history of PDPH, hypertension, morbid obesity, sinusitis, multiple punctures during the procedure and obstetric patients were excluded from the study. Patients were divided in four groups according to their age and gender in group Y from 18 to 35 yr., group O 36 to 65 yr., group M (male) and group F (female). On day of surgery after recording baseline parameters like noninvasive blood pressure (NIBP), ECG, respiratory rate (RR) and SpO2, all patients were preloaded with 15-20ml/kg of crystalloid solution prior to spinal anaesthesia. After explaining the procedure to the patient lumber puncture was performed under all aseptic precautions by an experienced anaesthesiologist. After locating the L3-4 or L2-3 interspace 25G Quincke needle was inserted in the midline in lateral decubitus position with bevel facing parallel to the direction of the dural fibers. After demonstration of free flow of clear cerebrospinal fluid, adequate dose of hyperbaric bupivacaine 0.5% was injected slowly with needle's bevel facing cephalad. All the patients were turned in supine position. After fixation of level of spinal block patients were placed in required surgical position. After surgery all patients were shifted to the post anaesthesia care unit with all necessary monitoring. Adequate hydration and bed rest were taken care off. All patients were interviewed after 12 hours, 24 hours, 36 hours, 48 hours, 60 hours and 72 hours for the presence of headache its severity, location, character,

duration, associated symptoms like nausea, vomiting, auditory and ocular symptoms.

PDPH was defined as the occipital, frontal or generalized headache brought on by erect posture and relieved when supine position was resumed [8]. Patients with a headache were evaluated for the severity and duration of the headache.

Severity of headache was assessed on 1 – 4 scale. (Crocker 1976).

Mild: Sitting/erect posture is possible for long period with headache without other symptoms.

Moderate: Difficult to stay upright for more than half an hour & occasionally associated with other symptoms.

Severe: Occurs immediately upon getting up from bed, alleviated while lying horizontal in bed often accompanied by other symptoms.

Very severe: Occurred even while lying horizontal and greatly aggravated immediately upon standing up and always associated with other symptoms.

Treatment of headache was individualized and ranged from bed rest, hydration, NSAIDS and Pregabalin to epidural blood patch.

Statistical analysis

Sample size calculation: Considering the incidence of post spinal headache as 20% depending on previous studies, α of 0.05 and β of 0.8 the Sample size was determined by the formula given by Fisher et al. (1998). If the population to be studied in a year is less than 10,000 (In our case approx. 400 which is the number of surgeries done under spinal anaesthesia per year, then Fisher et al. advised another formula which uses the required sample size got from the previous formula is applied. nf = n / (1+ n/N). Hence we selected minimum sample size of 150 during the study period. All data are expressed as mean ± standard deviation (SD). Chi-square test was used to compare categorical variables and Student's t-test was used to compare numerical variables between the groups. P value < 0.05 was considered significant.

Observations and results:

Demographic data were comparable in all the groups. (Table/Fig. 1 and 2).

Out of 186 patients, total 15 patients had classical PDPH according to defined criteria. The overall incidence of PDPH was 8.06%. 12 out of total 99 patients in group Y (18-35yr) and 3 out of 87 patients in group O (36-65yr) developed PDPH. Incidence of PDPH in group Y and O were 12.12% and 3.44% respectively. The difference in incidence of PDPH was statistically significant ($p<0.05$) in the two age groups. (Table/Fig. 3 and 4).

Out of 186 patients 98 were in group M and 88 were in group F; out of which 4 in group M and 11 in group F developed PDPH. The incidence of PDPH in group M and F were 4.08% and 12.5% respectively. In our study female has 3 times more incidence of PDPH than male. The difference in incidence of PDPH was statistically significant ($p<0.05$) in the two gender groups. (Table/Fig. 5 and 6)

Table/Fig. 7 shows the combined distribution of PDPH in all the 4 groups. (Table/Fig 7)

The maximum severity of headache varies between Grade II to Grade III. Out of 15 patients 12 patients (73.3%) had Grade II and 4 patients (26.6%) had Grade III PDPH. None of the patients in both the groups had very severe headache of Grade IV. (Table/Fig. 8 and 9)

The time of onset of development of PDPH was between 24 to 48 hours after dural puncture. None of the patient develops PDPH before 24 hours. (Table/Fig. 10 and 11).

PDPH cases were initially treated with bed rest, oral and intravenous hydration, oral NSAIDS. Oral Pregabalin 75mg three times a day was given if headache did not respond to bed rest, hydration & NSAIDS on 2nd day

onwards. Out of 15 patients who had PDPH 5(33.3%) patients needed treatment with Pregabalin. Requirement of Pregabalin is more in young female. All patients who require Pregabalin were young age and 4 patients out of 5 were female. All the patients who developed PDPH responded well to the treatment and none of the patient required epidural blood patch. (Table/Fig. 12)

Discussion

Spinal anaesthesia is a popular anaesthetic technique with a low complication rate but it carries the risk of post dural puncture headache (PDPH).

The mechanism of PDPH is based on the concept of persistent leakage of CSF through a dural tear at a rate faster than its production. This leads to reduce CSF volume and intracranial pressure which is aggravated by upright position due to gravity leading to the traction of pain sensitive intracranial structures. Other mechanism which may contribute to the severity of PDPH is cerebral vasodilatation according to the Monro-Kellie hypothesis [9], where the sum of brain, CSF and blood volume is constant, meaning that decrease in one component should increase in one or both the remaining components. This leads to the excruciating positional headache which may be accompanied by occiput, neck and shoulder pain, nausea, vomiting, photophobia, cranial nerve palsies, diplopia, hearing loss, Seizures and even subdural hematoma has also been reported [10-12]. The amount of CSF lost and therefore the incidence of PDPH depends on many factors which include needle dependant factors such as its size, type and bevel direction to the dural fibers and patients related factors such as patient's age, sex, BMI etc.

We evaluated data of 186 patients out of which total 15 patients had PDPH according to the defined criteria. The overall incidence of PDPH in present study with 25G Quincke needle is 8.06%. Our finding were similar to the many other studies done previously like H Lybecker et al. (7.3%); Vandam LD et al. (11%); Janik R et al (10.4%); Manuel CV et al. (8.7%); Rasmussen et al. (12.6%); Kang SB et al (9.6%) [2,3,6,13,14,15]; In some studies there is higher incidence of PDPH than our study like V Grover et al (24%); J Singh et al. (25%); Kortum K et al. (30.96%) [16-18]. A few studies like Tariq M et al. (5%); J Lynch et al. (1%) and M Seeberger et al. (1.5%) show the overall incidence of PDPH less than that seen in our study [19-21]. Possible causes for different PDPH rates in these studies include differences in population characteristics, inadequate sample size in some studies, inaccuracy in defining PDPH, variable duration and methods of follow-up.

In our study the incidence of PDPH in young and old age group was 12.12% and 3.44% respectively, which correlates with previous studies showing the incidence of PDPH is more common in younger age group than old age [2,3,16-22]. However some studies shows that there is no association between the incidence of PDPH and age [23-26]. A study done by M. Schmittner et al. differs in this context as their study showed no statistically significant difference between the age group of patients who developed PDPH and who did not. In their study they used 25 G and 29 G needles and patients in 29 G needle group were of young age significantly. Sung R Kim et al in their study of 70 patients, showed no association between age and gender of the patients and incidence of PDPH [24]. These differences can partly be explained by differences in the population (as they also included parturient in their study), different needle sizes used and low sample size. The exact age group for the both groups were not defined. The exact incidence of PDPH in specific age and gender group was not specified. Their study was not done in a single tertiary referral hospital so that the technique and methodology may vary.

The risk of the young age to develop PDPH may have many reasons. Patients in the age of 20-30 years are most susceptible [16]. The reason for this is not clear but low incidence of PDPH in elderly individual may be due to following reasons [27-30] 1). The age-related changes causing reduced elasticity of the dura mater makes it more difficult for CSF to leak through the puncture hole. 2). Elderly patients may have reduced vertebral extradural space allowing a small amount of CSF accumulation, thereby, reducing the amount of CSF leak from the subarachnoid space. 3). Compared to young subjects, older subjects may have a clinically significant reduction in the intensity of pain perception [27]. 4). Elderly patients may have decreased A-δ and C-fibre function, attenuated central sensitization, elevated pain thresholds and decreased sensitivity to low intensity noxious stimuli [28,29]. 5). In addition older patients may have a diminished reactivity of cerebral vessels causing diminished response to reduced CSF pressure [30].

Though Gender is often quoted as a risk factor for PDPH, the extent of gender as an independent risk factor for the development of PDPH is not clear. Incidence of PDPH in female gender (12.5%) is approximately 3 times higher than male (4.08%) in our study. This confirms the findings of previous studies like Vandam LD at el. and other studies [3,16,17,21,22]. A systemic review done by Christopher L Wu in 2006 concluded that the odds of developing a PDPH are approximately 2 times greater in female than in male subjects [30]. However, a study done by H Ly Becker at el does not support our finding. Difference in the results of the both the studies may be due to difference in methodology, needle type, size and bevel orientation. Moreover, the median age of female in their study (52 yrs.) was higher than our study (34 yrs.). A similar study done by M. Seeberger et al also shows no association of gender with PDPH which may be due to different sample size and inclusion of patients with multiple dural punctures in their study.

Although it is not apparent why non-pregnant females would have a higher incidence of PDPH, there may be several physiologic, anatomical, or psychosocial possibilities. 1). Female subjects seem to process nociceptive information differently than male subjects. 2). It seems that female generally exhibit greater sensitivity to experimental noxious stimuli than males [30]. 3). Females also have higher temporal summation of mechanically evoked pain, indicating that females may demonstrate a greater degree of central sensitization compared with males [31]. 4). There are differences in patterns of cerebral activation in response to noxious stimuli between both genders. Females have greater activation of the contralateral prefrontal cortex, an activation pattern associated with increased pain perception [30, 32]. 5). In addition to gender differences in nociceptive thresholds and processing, there may be psychosocial factors that may contribute to some of the differences seen in experimentally induced pain [30]. 6). Male subjects are less likely to disclose the presence of pain than female subjects due to psychosocial gender role expectations which may influence the incidence of reported pain. These psychosocial variables may contribute to a significant portion of the differences seen [30]. Therefore, both biologic and psychosocial factors may contribute to the differences in pain perception,

which may in part explain the increased incidence of reported PDPH in female subjects.

There are other reasons why females might hypothetically report a higher incidence of PDPH. Vasodilation of the cerebral vessels normally occurs in patients with PDPH as a homeostatic mechanism to compensate for CSF loss and may theoretically contribute to the severity of PDPH. Gender differences in

the cerebral vasodilatory response are present with premenopausal females exhibiting significantly greater vasodilatory response to acetazolamide than males or postmenopausal females [33] 8). Estrogen has been shown to mediate cerebral artery tone and may dilate cerebral pial vessels [34] 9). Finally, younger (aged 30–40 yr.) presumably premenopausal women have a significantly higher cerebrovascular reactivity compared with older women (aged 50–60 yr.) and men. [30]

In our study the severity of PDPH in all patients varies between Grade II to Grade III which is similar to many studies according to the defined criteria [3,16,18]. Out of 15 patients 11 (73.3%) had moderate (Grade II) and 4 (26.6%) had severe (Grade III) PDPH. Severe headache was usually accompanied by nausea and vomiting. None of the patients in both the groups had very severe headache of Grade IV.

The time of onset of development of PDPH was between 24 to 48 hours after dural puncture. Out of 15 patients 5 (33.3%) had PDPH in 24 hrs, 6 (40%) had PDPH in 30 hrs and 4 (26.6%) had PDPH in 36 hrs. None of the patients develops PDPH before 24 hours or after 48 hours. The location of PDPH was occipital in 9(60%) patients, fronto-occipital in 3(20%) and generalized in 3(20%) patients.

PDPH cases were initially treated with bed rest, adequate hydration and NSAIDS. Oral Pregabalin 75mg three times a day was given when headache did not responded on 2nd day onwards. Requirement of Pregabalin is more in young female suggesting that young age female have more chances of having severe PDPH. All the patients who developed PDPH responded well to the treatment and none of the patients in our study required epidural blood patch.

None of the 15 patients who develop PDPH had other symptoms associated with it like cranial nerve palsy, neck stiffness, vertigo, tinnitus, diplopia or cortical blindness.

Conclusion

Our study conclude that young age and female gender is more prone to develop PDPH. Female patients have 4 times higher chances of development of PDPH than male patients. The severity of PDPH is more in female which may require therapeutic intervention. The incidence of PDPH is inversely proportional to the age of the patients.

As the incidence of PDPH in our study indicates that it is more pronounce problem in young and female patients, anaesthetic plan should be decided accordingly. If spinal anaesthesia is indicated in young and female patients measures to reduce the chances of PDPH should be taken.

References

1. Wulf HFW. The centennial of spinal anesthesia. Anaesthesiology 1998; 89:500–6.

2. Lybecker H, Jakob T. Mdler, O May and Hans K. Nielsen. Incidence and Prediction of PostDural Puncture Headache A Prospective Study of 1021 Spinal Anesthesias. Anesth analg 1990; 7:389-94

3. Vandam LD, Dripps RD (1956) Long-term follow-up of Patients who received 10,098 spinal Anaesthetics: Syndrome of decreased intracranial Pressure (Headache and ocular and auditory Difficulties) JAMA 161: 586-591

4. Turnbull D.K. and Shepherd D. B. Post-Dural puncture headache: pathogenesis, prevention and treatment. British Journal of Anesthesia, 2003; Vol. 91, No.5 718-729

5. Christopher L. Wu, paul Christo, Jeffery M Richman and Wesley Hsu. Post Dural puncture Headaches: An Overview The international journal of pain medicine and palliative care; volume 3 no 2 2004

6. Janik R, Dick W. Post spinal headache: its incidence following the median and paramedian techniques. Anaesthesist 1992; 41:137–41.

7. Ross BK, Chadwick HS, Mancuso JJ, Benedetti C. Sprotte needle for obstetric anesthesia: decreased incidence of postDural puncture headache. Reg Anesth 1992; 17:29–33.

8. Headache Classification Subcommittee of the International Headache S. The International Classification of Headache Disorders: 2nd edition. Cephalalgia. 2004; 24 Suppl 1:9–160. [PubMed: 14979299]

9. Mokri B, The Monro-Kellie hypothesis: applications in CSF volume depletion. Neurology 2001 Jun 26;56(12):1746-8.

10. Evans RW. Complications of lumbar puncture. Neurol Clin. 1998;16(1): 83–105.

11. Raskin NH lumbar puncture headache: A review. Headache 1990;30;197-200]

12. Reynolds F. Dural puncture and headache. Br Med J 1993; 306: 874–5]

13. Manuel CV, Gordon L. Mandell, Daniel P. Sabo and Sivam R. PostDural Puncture Headache: A Randomized Comparison of Five Spinal Needles in Obstetric Patients. Anesth Analg 2000;91:916–20.

14. Rasmussen BS, Blom L, Hansen P, Mikkelsen SS. Postspinal headache in young and elderly patients. Two randomised, double-blind studies that compare 20- and 25-gauge needles. Anesthesia. 1989 Jul; 44 (7):571-3

15. Kang SB, Goodnough DE, Lee YK, Olson RA, Borshoff JA, Furlano MM, Krueger LS: Comparison of 26- and 27-G needles for spinal anesthesia for ambulatory surgery patients. ANESTHESIOLOGY 1992; 76:734–8

16. Grover VK, Indu B, Mahajan R, Sharma S, Post-Dural Puncture Headache Following Spinal Anesthesia: Comparison of 25g Vs 29g Spinal Needles Bahrain Medical Bulletin, Vol.24, No.4, December 2002

17. J Singh, S Ranjit, S Shrestha, T Limbu, S. B. Marahatta Post Dural puncture headacheJournal of Institute of Medicine, August, 2010; 32:2

18. Kortum K, Nolte H, Kenkmann HJ (1982) Sex Difference related Complication Rates after spinal anesthesia Reg Anaest 5: 1-6

19. Tariq M, Khan MA, Iqbal A, Post spinal headache; comparing needles of 25 and 27 gauges for incidence of post spinal headache. Professional Med J Sep 2007; 14(3): 441-447.

20. J. Lynch, I Krings-ernst, K Strick, K Topalidis, H Schaaf and M Fiebig Use of a 25-gauge whitacre needle to reduce the incidence of postdural puncture headache british journal of anesthesia 1991; 67: 690-69

21. Seeberger MD, Kaufmann M, Staender S, Schneider M and Scheidegger D, Repeated Dural Punctures Increase the Incidence of PostDural Puncture Headache (Anesth Analg 1996;82:302-5)

22. Wadud R, Laiq N, Qureshi FA, Jan AS The frequency of postDural puncture headache in different age groups. J Coll Physicians Surg Pak. 2006 Jun;16(6):389-92.

23. Dagmar O, Aleksandra J, Ira S et al. Incidence and clinical significance of post-Dural puncture Headache in young orthopaedic patients and parturients periodicum biologorum vol. 115, no 2, 203–208, 2013

24. Sung R Kim, Hyun S Chae, Mi J Yoon, Jung H Han, Kwang J Cho and Sun J Chung No effect of recumbency duration on the occurrence of post-lumbar puncture headache with a 22G cutting needle Kim et al. BMC Neurology 2012, 12:1

25. Despond O, Meuret P, Hemmings G. PostDural puncture headache after spinal anesthesia in young

orthopaedic outpatients using 27-g needles CAN J ANAESTH 1998 / 45:11 / pp 1106-1109

26. Schmittner MD, Terboven T , Dluzak M, Janke A at el. High incidence of post-Dural puncture headache in patients with spinal saddle block induced with Quincke needles for anorectal surgery: a randomised clinical trial Int J Colorectal Dis (2010) 25:775–781.

27. Gibson SJ, Helme RD, age-related differences in pain perception and report Clin Geriatr Med 2001;17:433-56

28. Chakour MC, Gibson SJ, Bradbeer M et al. The effect of age on A delta and C fibres thermal pain perception. Pain 1996;64:143-53

29. Harkins SW, Davis MD, Bush FM. Suppression of first pain and slow temporal summation in second pain in relation to age. J Gerontol 1996;51: M260-5

30. Christopher L. Wu, Andrew J, Rowlingson, B.A., Seth R. Cohen et al. Gender and Post–Dural Puncture Headache Anesthesiology 2006; 105:613–8

31. Sarlani E, Greenspan JD: Gender differences in temporal summation of mechanically evoked pain. Pain 2002; 97:163–9

32. Paulson PE, Minoshima S, Morrow TJ, Casey KL: Gender differences in pain perception and patterns of cerebral activation during noxious heat stimulation in humans. Pain 1998; 76:223–9

33. Karnik R, Valentin A, Winkler WB, Khaffaf N, Donath P, Slany J: Sex-related differences in acetazolamide-induced cerebral vasomotor reactivity. Stroke 1996; 27:56–8

34. Geary GG, Krause DN, Duckles SP: Estrogen reduces mouse cerebral artery tone through endothelial NOS- and cyclooxygenase-dependent mechanisms. Am J Physiol Heart Circ Physiol 2000; 279:H511–9.

Tables and Graph

Table 1: Demographic data for both age groups.

	Group Y (n=99)	Group O (n=87)
Sex (M/F)	56/43	42/45
Height(cm)	159 ± 8.11	158 ± 9.4
Weight(kg)	59.1 ± 7.77	62 ± 10.39
BMI ($kg/m^{2)}$	23.4±1.62	24.6 ± 2.28

Table 2: Demographic data for both gender groups.

	Group M (n=98)	Group F (n=88)
Age(yr.)	35.1 ± 13.8	34.9 ± 10.5
Height(cm)	160 ± 5.24	155 ± 5.08
Weight(kg)	66.4 ± 7.78	53.9 ± 5.36
BMI (kg/m^2)	24.43 ± 2.02	23.46 ± 1.94

Table 3: Incidence of PDPH in the two age groups.

Age distribution	With PDPH	Without PDPH	Total
Group Y(20-35yr)	12 (12.1%)	87(87.8%)	99
Group O(35-65yr)	3(3.4%)	84(96.5%)	87
Total	15(8.06%)	171(91.9%)	186

P = 0.030 (< 0.05) significant.

Fig. 1: Incidence of PDPH in the two age groups.

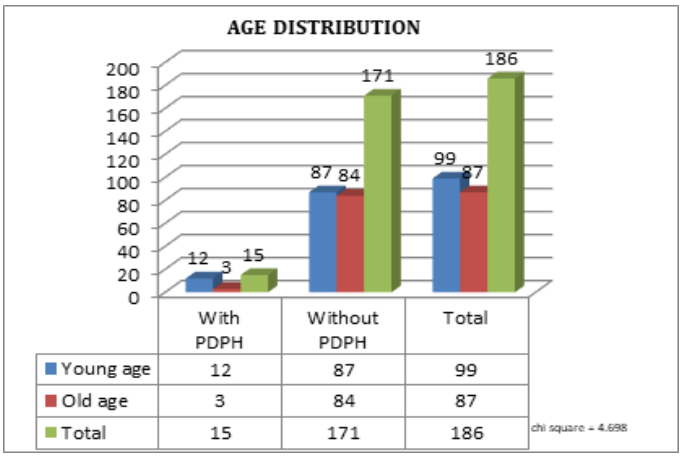

Table 4: Incidence of PDPH in the two-gender group.

	With PDPH	Without PDPH	Total
Group M	4(4.08)	94(95.9)	98
Group F	11(12.5)	77(87.5)	88
Total	15(8.06)	171(91.9)	186

p=0.035 (< 0.05) significant.

Fig.2: Incidence of PDPH in the two-gender group.

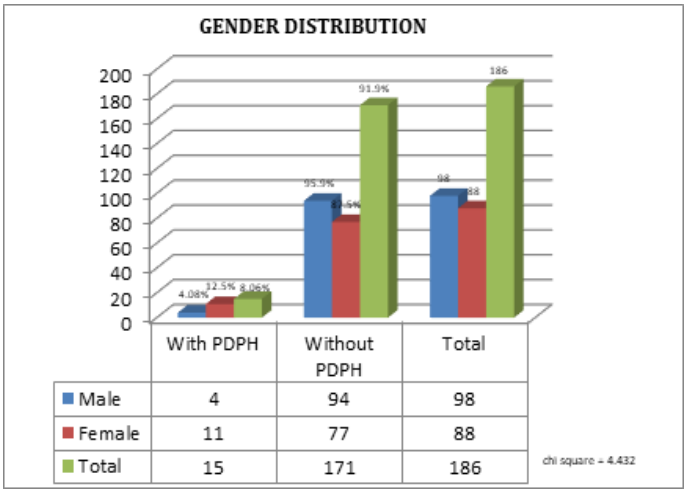

Table 5: Distribution of gender and age of patients with PDPH.

	Group Y	Group O	Total
Group F	9	2	11
Group M	3	1	4
Total	12	3	15

Table 6: Maximum severity of PDPH.

Grade of headache	No of patients
Mild (grade I)	0
Moderate (grade II)	11(73.3%)
Severe (grade III)	4(26.6%)
Very severe (grade IV)	0

Fig. 3: Severity of headache in patients of PDPH.

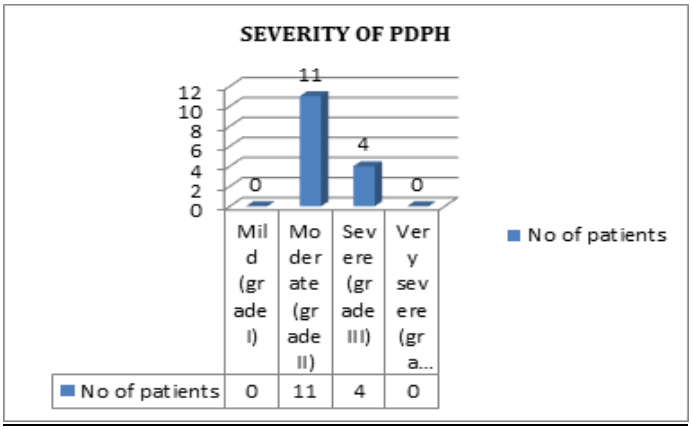

Table 7: Time of onset of PDPH.

Time	No of patients
24 hours	5(33.3%)
30 hours	6(40%)
36 hours	4(26.6%)
48 hours	0
60 hours	0
72 hours	0

Fig. 4: Showing the time of onset of PDPH in 186 patients.

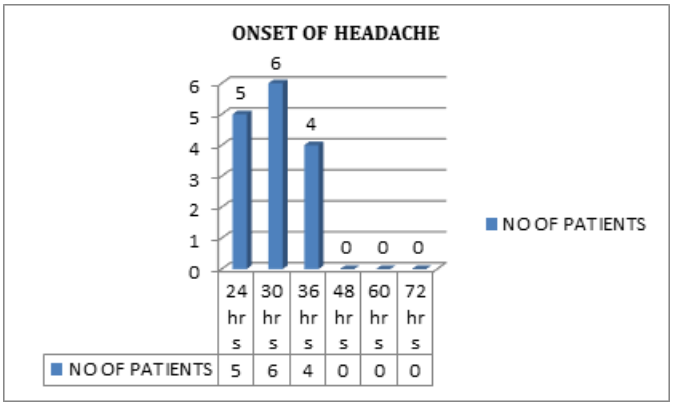

Table 8: Requirement of treatment with Pregabalin for PDPH.

	No. of patients out of 15 who had PDPH	Group Y (total 12)	Group O (total 3)	Group F (total 11)	Group M (total 4)
Pregabalin required	5	5	0	4	1
Pregabalin not required	10	7	3	7	3