Assess the Effectiveness of SIM on Knowledge Regarding Spinal Anesthesia Complication among Staff Nurses Working in Selected Hospitals Jalgaon

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Abstract: *Spinal anesthesia have a risk or complication during the operating table or in post anesthesia care unit such as hypotension, post dural headache, bradycardia, etc. Based on the objectives of the study, 30 structured questionnaires on spinal anesthesia complication were prepared, evaluative approach, quasi experimental design and simple random sampling was used. Result : out of 60 sample in pre-test level of knowledge of staff nurses were having 65% average, 31.67% poor and 3.33% good knowledge, in post-test the score of staff nurses were having 58.33% average, 28.33% good, 13.33% poor knowledge.*

Keywords: spinal anesthesia complication, self-instructional module, hypotension, post dural headache, bradycardia, staff nurse

1. Introduction

Spinal anesthesia have a risk or complication during the operating table or in post anesthesia care unit such as hypotension, post dural puncture headache, bradycardia etc. The immediate time after anesthesia on sedation require careful monitoring because there is still a risk of complication. Nausea are reported at 9.8%, need for airway support at 6.8%, hypotension 2.7%. The incidence rate of spinal anesthesia complication of cardiac arrest is 2.73/10,000 patients, urinary retention 5- 70% , post dural puncture headache may be high as 7%, backache pain 25%, transient neurological symptoms 30%,epidural abscess 0.015-0.7%. There is a report of spinal anesthesia complication among the obstetrics cases of 16,697 deliveries, 35.9:10,000 of anesthetic complication of spinal such as desaturation, cardiac arrest, death etc. There is fewer programmed in India for updating the nurse regarding the knowledge of anesthesia and its complication. Knowing of anesthetic complication will help the nurse in proper assessment, monitoring the patient and immediate management of care in post anesthetic care unit. Post-operative mortality within the first 24 hours are due to airway obstruction, laryngospasm, hemorrhage, cardiac arrest, or medication error. Other factors that contribute to complications include a lack of standardized patient care or an absence of medical or nursing supervision.

2. Literature Survey

Govardhane T (2015). Conducted on "Meningitis following spinal anesthesia". A case report from the **Maharashtra**. LTMMC and LTMG hospital report four cases which developed meningitis after spinal anesthesia to a 24 yrs female weeks gestation for cervical encirclage,60 yr female for skin grafting, 35yr male for haemarroidectomy and a 26 years female LSCS. The entire patient complained of headache approximately 6-8hr after spinal anesthesia. One patient developed vomiting and pregnant women developed sensorium alteration and other post dural headache and over 4-6hr all the patient developed assign and symptoms of meningitis.

Shaikh JM (2008). Conducted on "Post dural puncture headache after spinal anesthesia for caesarean section: comparison of 25g quincke, 27 g quincke and 27g whitacre". A comparative randomized, double blind interventional study was conducted at Liaquat university hospital **Hyderabad** among 168 sample of full term obstetric patient by using 25, 26 Qunicke and 27 gauge whitacre spinal needle. Group I(N=25) gauge qunicke, Group II (N=27) gauge qunicke and Group III (N= 152) 27 gauge whitacre and spinal anaesthesia was performed and each patient was assessed carefully monitor for PDPH and recorded by using SPSS scale and the results show 8.3% by 25 qunickeguage, 3.8% by 27 qunicke gauge and 2% by 27 gauge whitacre. Severe PDPH did not occur in Group III.

Shaila S K (2006). Conducted on "Cardiac arrest following spinal anesthesia"**.** A case report of cardiac arrest was found following spinal anesthesia at Kasturba medical college hospital **Mangalore.** A 29 yr old patient was posted for removal of implants from right tibia and a surgery was performed under the subarachnoid block by injecting 3ml of 0.5% bupivacaine at a single prick but after 20 min the patient developed bradycardia and atropine was administered. The cardiac arrest was developed during spinal anaesthesia.

Ferre, F (2016). Conducted on "Prophylactic Phenylephrine Infusion for the Prevention of Hypotension after Spinal Anesthesia in the Elderly": A prospective, randomized, double-blind, and placebo-controlled study included 54 patients older than 60 years undergoing elective lower limb surgery under SA. 28 patients were randomized to group P (100-μg/mL solution of phenylephrine solution at 1 mL/min after placement of SA) or 26 patients to control group C (0.9% isotonic sodium chloride solution) and heart rate and MAP was recorded throughout. The proportion of patients without hypotension (cumulative survival) was better in group P (P= .04). The conclusion is that Prophylactic phenylephrine infusion is an effective method of reducing SA-induced hypotension in the elderly.

Ghada ER, et. al (2013 Egypt). Conducted on "Efficacy of preoperative pregabalin on reduction of the incidence and severity of post dural puncture after spinal anesthesia". A

double blind study was conducted on 86 patient of both sex, ASA I and II aged 20-50 yr old, planned for elective general surgeries below the umbilicus under spinal anesthesia. The group was divided into two group, Group C (control group 43) who received a placebo capsule 2hr preoperatively, Group P who received 150 pregabalin capsule 2hr preoperatively. The number of attempt of spinal block, sensory level, motor block grade, post-operative time of incidence, onset and intensity of PDPH and adverse events are recorded. The result shows that pregabalin reduced the incidence and severity of PDPH.

D.A. Hiremath (2013). Conducted on "Awareness about anesthesia and anesthesiologist among the paramedical staffs of S.N medical college, Bagalkot (Karnataka)".A study was designed to assess the knowledge about the role of anesthesia and anesthesiologist among the paramedical staff by collecting the data pretested and predesigned questionnaire from 105 study participants. A majority of 90.28% of respondents felt that anesthesia was necessary for surgery. 40.80% knew that it was given by anesthesiologists. 18.38% of respondents knew that besides anaesthetizing, anesthesiologists monitor the vital signs till the completion of surgery. 5.60%, 9.11% & 3.8% of respondents were aware of their role in ICU, labor analgesia and pain clinic respectively. The statistical association between past exposure to anesthesia and knowledge about anesthesia was not significant ($p < 0.1$). The conclusion show that the role inside the theater & expanding role outside the theater poorly known.

3. Problem Definition

A quasi experimental study to assess the effectiveness of self- instructional module on knowledge regarding spinal anesthesia complication among staff nurses working in selected hospitals.

4. Objectives of the study

1) To assess the pre-test knowledge score regarding spinal anesthesia complication among staff nurses working in selected hospital.
2) To find the effectiveness of self-instructional module regarding knowledge by comparing the pre-test and post-test knowledge of the staff nurse
3) To find out the association between post test knowledge score with their selected demographic variables.

5. Methods / Approach

In this study quasi experimental research design was adopted, based on the problem statement & objectives of the study, evaluative approach was used. The purpose of evaluative approach is to assess the effectiveness of SIM on knowledge of spinal anesthesia complication among staff nurses. Here the investigator identifies and evaluate the effectiveness of SIM on knowledge regarding spinal anesthesia complication among staff nurses with the help of 30 structured questionnaire related to spinal anesthesia complication. The population & sample were staff nurses who were fulfilling the inclusive & exclusive criteria & sample consisted of 60 staff nurses. The probability simple random technique was used. Tools used for data collection include two sections namely demographic variables & structured questionnaire on knowledge regarding spinal anesthesia complication among staff nurses.

6. Result

For the data analysis and interpretation, various methods has been used by researcher that are descriptive and inferential statistics ware widely used. In that frequency and mean percentage were calculated, 30 questions are analysed based on the response of participant regarding complication of spinal anesthesia. A structured questionnaire is used for data collection. The analysis was done with the help of descriptive & inferential statistics.

SN	Data analysis	Method	Remark
1.	Descriptive statistics	Mean, Frequency & percentage	Assess the level of knowledge on spinal anesthesia complication
2.	Inferential statistics	Paired "t" test	Assess the effectiveness of self -instructional module
		Chi- square test	Association between level of post- test knowledge with demographic variables

The analysis of data is organized and presented under the following heading

Section- I: This section includes distribution of staff nurses in relation to demographics data by using frequency and percentage.

Section –II: This section deals with assessment of pre-test and post- test knowledge level of staff nurses regarding spinal anesthesia complication by using frequency and percentage distribution.

Section – III: This section deals with analysis to determine the effectiveness of self-instructional module by using pre-test and post-test score.

Section –1V: The association of post-test knowledge score with selected variable

Section- V: Testing of hypothesis by using paired "t" test

Table 1: Frequency and percentage wise distribution of samples according to their demographic characteristics.

| Sr. No.	Variable	Groups	Frequency	Percentage %
1	Gender	Male	15	25
		Female	45	75
2	Qualification	Diploma	43	71.67
		Graduation	17	28.33
3	Education Institute	Government	42	70
		Private	18	30
4	Area of working	Post operative Ward	22	36.67
		Surgery & OBGY ward	12	20
		Ortho ward	17	28.33
		Neuro surgery ward	9	15
5	Duration of experience	0-3 yr	46	76.67
		4-7.yr	10	16.67
		8-11. yr	4	6.67
		> 11 yr	0	0
6	previous exposure of information	Yes	23	38.33
		No	37	61.67
7	source of information	Health personal	6	26.09
		Seminar & workshop	0	0
		Academic education	17	73.91
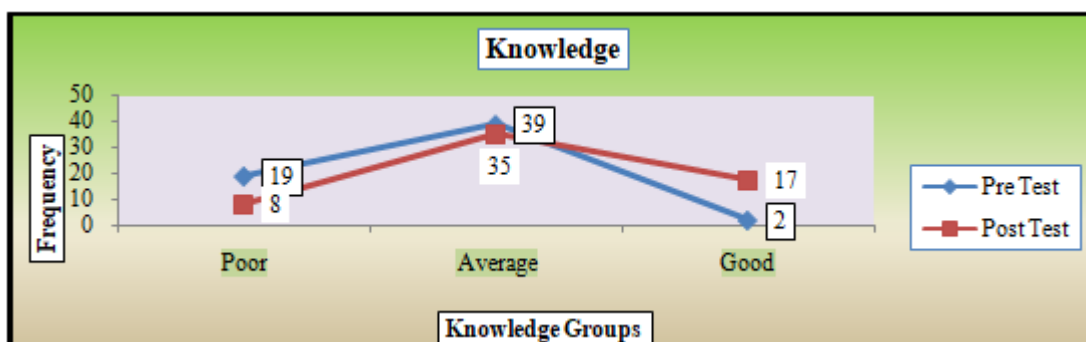
Figure 1: Line diagram showing effectiveness of self- instructional module by comparing pre-test level knowledge with post-test level of knowledge

Table 2: Showing mean percentage of pre-test and post-test of knowledge effectiveness of SIM

Group	Frequency	Mean	S.D.	t value	P value
Pre Test	60	13.65	4.18		
Post Test	60	19.2	4.8	16.56	0

7. Discussion

The findings of the study have been discussed with reference to the objectives of the study & with findings of the other studies

With regard to the demographics variables the majority group are 45(75%) belongs to female, diploma 43(71.67%), government institute 42(70%), post-operative ward are 22(36.67%), ortho ward are 17(28.33) ,duration of experience, 0-3yr are 46(76.67%),previous information of knowledge on spinal anesthesia complication, yes 23(38.33%) and source of information17(73.91%) are from academic education.

Findings related to pre-test and post-test knowledge score of level of knowledge on spinal anesthesia complication among nurses ,most of the subjects in pre-test were having 39(65%) average knowledge of staff nurses regarding spinal anesthesia complication, 19(31.67%) poor knowledge and 2(3.33%) good score of knowledge whereas in post-test were majority 35(58.33%) average knowledge of staff nurses regarding spinal anesthesia complication, 17(28.33%) good knowledge and 8(13.33%) poor score of knowledge.

Finding in regard to the effectiveness of self-instructional module, thecalculated "t" value is 16.56 for knowledge of staff nurses regarding spinal anesthesia complication. The calculated value is more than the tabulated value at 5% level of significance which is statistically significant. In addition the 'p' value is 0.000 (less than 0.05) conclude that self-instructional module on knowledge regarding spinal anesthesia complication among staff nurses was effective. Hence H_1 is accepted.

The association between post-test level knowledge of spinal anesthesia with demographics variables was calculated by chi-square and the calculated value is greater than (at 0.05) tabulated value(in addition P value is less than 0.05) for post-test of knowledge about spinal anesthesia complication among staff nurses with demographics variables such as qualification, duration of experience, previous exposure of information and source of information. So it is concluded that there is a significant association between post-test level of knowledge about spinal anesthesia complication among staff nurses with demographic variables. Hence H_2 is accepted.

8. Conclusion

In that study, the contributing that affect the knowledge level of the staff nurses are education qualification, duration of experience, previous exposure of information and source of information.

The findings of present study shows that the highest percentage 46(76.67%) of staff nurses belong to the duration of experience 0-3 yr. The post-test knowledge mean score 19.20 was higher than pre-test mean score of knowledge 13.56.

The comparison of pre-test and post-test knowledge score showed that there was a significant gain in knowledge scores of the spinal anesthesia complication after giving self-instructional module at 0.05 level (t- 16.56, p<0.05). This results shows that the self-instructional module was effective.

The study findings concluded that the staff nurses were had poor knowledge regarding spinal anesthesia complication. The self-instructional module had great potential for accelerating the awareness regarding knowledge of spinal anesthesia complication.

9. Future Scope

Nursing education
The nursing curriculum should incorporate activities like seminar and conferences. The in-service education should be conducted to improve the knowledge and skills of nurses. Nursing education helps the nurses to gain adequate knowledge, skills and attitude to fulfill their duties and responsibilities in nursing field. Nurse educators can educate the students about the spinal anesthesia complication and for this nurses need to update their knowledge through regular in-service education.

Nursing practice
Nurses are key person of health team who play a major role in health promotion and maintenance, nursing research studies are usually not intended in pursuing knowledge simply for the sake of knowledge. It is practicing profession so the researcher generally integrates findings into practice. Nurses working in hospitals play important role in minimizing the complication after spinal anesthesia. The investigator as a nurse felt nurse should develop skills regarding how to treat if the patients got a complication after spinal anesthesia and how to prevent the complication.

Nursing administration
The present study reveals that nurses did not have knowledge regarding spinal anesthesia complication special endeavors can be taken up by nursing administrator and educators to develop curriculum to produce the skillful nurses to handle patients of spinal anesthesia complication and how to prevent it priority. The nursing administrator should organize in service education programme to nursing personnel regarding spinal anesthesia complication.

Nursing research
Research essentially is problem solving approach. There is wide scope of conducting research study in depth by using tools in order to assess the knowledge regarding spinal anesthesia complication among staff nurse. The researcher found that literature regarding the assessment of knowledge on spinal anesthesia complication to Indian context is inadequate. Research studies can also be conducted on practice of management of spinal anesthesia complication.

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