

Anaesthesiologists Awareness On Effect Of Anaesthetic Agents On Personnel And Environment

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Abstract:

Background Global warming is one of the biggest issues we face in our day-to-day life. As an anaesthetist it our responsibility to know our contribution to this global issue and how to keep it in control. Anaesthetic agents also contribute to this issue of environmental pollution according to the recent literature. As anaesthetists we need to be aware of this effect and try to reduce the harmful effects by using alternative methods .The recent epidemic of COVID 19 has increased the production of hospital wastage by billions of tons, so we all should be aware of the consequence and should have the knowledge to minimise the waste production.

Materials and Methods: In this study, a questionnaire of 20 questions was sent via email to consultant anaesthetists and anaesthesia post graduates of different medical colleges across India, after obtaining consent from the participants. These questions prepared on a google form.

Results: Majority of study participants had less than 5 years of experience in anaesthesiology. Most of participants (70%) had excellent knowledge regarding effect of anaesthetic agent on personal and environment. There was no statistically significant difference found between gender, years of experience and Knowledge score.

Conclusion: There was no statistically significant difference found between gender and Knowledge score. There was no statistically significant difference found between years of experience and Knowledge score.

Key Word: Anaesthetists, Awareness, Global Warming, questionnaire.

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I. Introduction

Global warming is one of the biggest issues we face in our day-to-day life. As an anaesthetist it our responsibility to know our contribution to this global issue and how to keep it in control. Anaesthetic agents also contribute to this issue of environmental pollution according to the recent literature. As anaesthetists we need to be aware of this effect and try to reduce the harmful effects by using alternative methods .The recent epidemic of COVID 19 has increased the production of hospital wastage by billions of tons, so we all should be aware of the consequence and should have the knowledge to minimise the waste production. Through this study were able assess the knowledge of anaesthetist about this world-wide problem and contribute some information to minimise the effect of global warming from anaesthesia side. Greenhouse gas emissions from inhalation anaesthetic agent can be reduced by low flow anaesthesia in oxygen/air mixture, using them less often and choosing inhalation agents with lower global warming impacts. Technologies are currently being developed and refined to capture and destroy scavenged agents, thereby further reducing their atmospheric release. Lack of knowledge in Anaesthetists on the effects of various anaesthetic agents on personnel and environment is the basis of this study.

II. Material And Methods

This study was conducted among consultant anaesthesiologists and anaesthesia postgraduate students of different tertiary care teaching hospitals across India, by using a questionnaire of 20 questions. These questions were prepared on a google form and sent by e-mail to the participants, after obtaining consent from the participants.

Study Design: cross-sectional study

Study Location: This was a tertiary care teaching hospital-based study done in the Departments of Anaesthesiology, across India.

Study Duration: October 2023 to November 2023.

Sample size: 74

Sample size calculation: Sample size was determined based on the previous study of White, S M et al. Principles of environmentally-sustainable anaesthesia: a global consensus statement from the World Federation of Societies of Anaesthesiologists¹.

$$n = z^2 * p(1-p) / l^2$$

$$n = (1.96)^2 * 74(100-74) / (10)^2$$

$$n = 74$$

Subjects & selection method: The study population was drawn from consultant anaesthesiologists and anaesthesia postgraduate students of different tertiary care teaching hospital across India.

Inclusion criteria:

1. Practicing Anaesthesiologists and Anaesthesia postgraduate students of tertiary care teaching hospitals.

Exclusion criteria:

1. Doctors who are not practicing anaesthesiologists or anaesthesia postgraduate students.
2. Participants who did not give consent.

Procedure methodology

After written informed consent was obtained, a well-designed questionnaire was used to collect the data from the participants. The questionnaire was formulated to assess the awareness on effect of anaesthetic agents on personnel and environment amongst anaesthetists. The questionnaire also included socio-demographic characteristics such as age, gender and years of experience. A Knowledge was drawn from the option entry made by the participants.

Statistical analysis

The response obtained was be coded and entered on Microsoft excel version. After data editing and data cleaning it was be transferred to IBM licensed SPSS statistics version 23.0. Descriptive statistics was used to determine the frequency and percentages. Mean, standard deviation and standard error were be calculated and other variables, wherever required. Chi square chart was be used to assess the difference in significance among the qualitative variables.

III. Result

Out of total, 47 were females and 27 were males.

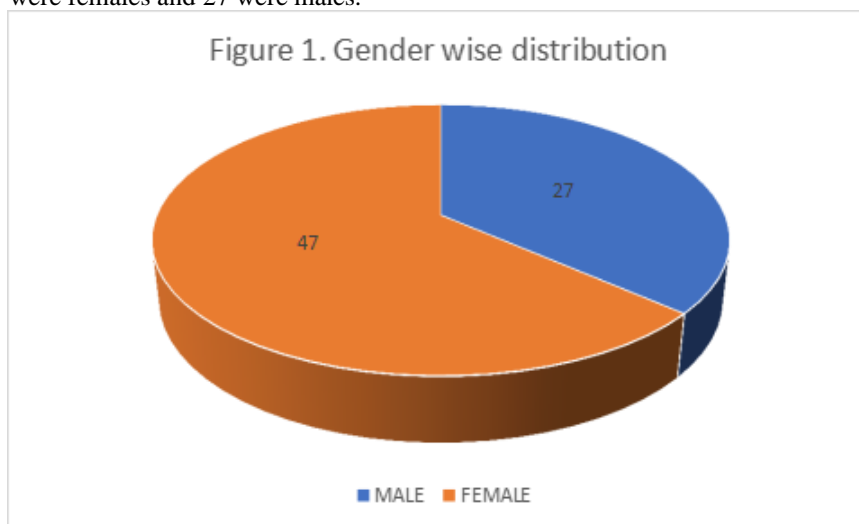


Table no 1: Experience details of participants (n=74)

Experience (in years)	Frequency	Percentages
< 5	41	55.4
5-10	22	29.7
>10	11	14.9

Majority of study participants had less than 5 years of experience in anaesthesiology.

Table no 2: Total Knowledge Score among participants (n=74).

Mean	15.99
SE	0.278
Median	16.50
SD	2.390
IQR	3
Minimum	7
Maximum	20

Table no 3: Total knowledge score classification.

Knowledge Score	Number of participants	Percentage of participants
Excellent (16-20)	49	70
Good(11-15)	23	27.2
Average(6-10)	2	2.8
Poor(0-5)	0	0

Most of participants (70%) had excellent knowledge regarding effect of anaesthetic agent on personal and environment.

Table no 4: Comparison between Gender and Knowledge score (n=74)

Gender	Mean	SD	Z-test	p-value
Male	15.78	2.35	1.85	0.573
Female	16.11	2.4		

There was no statistically significant difference found between gender and Knowledge score.

Table no 5: Comparison between Experience years and Knowledge score (n=74)

Experience years	Mean	SD	ANOVA-test	p-value
< 5	15.95	2.5	5.61	0.98
5-10	16.09	2.4		
>10	14.8	2.11		

There was no statistically significant difference found between years of experience and Knowledge score.

IV. Discussion

The study aims to know about the knowledge of anaesthetist on the effects of various anaesthetic agents on personnel and environment. A study group of 74 anaesthetist were taken and questionnaire with 20 questions was given. Responses were taken and analysed . It was found that the result does not depend on the years of experience and knowledge and also does not depend on the gender. Most of the participants had excellent knowledge regarding the effect of various anaesthetic agents on personnel and environment.

V. Conclusion

There was no statistically significant difference found between gender and Knowledge score. There was no statistically significant difference found between years of experience and Knowledge score.

References

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