

Awareness of Hypertensive Crisis among Allied Health Science Students

Sasipriya. G¹, Subhasree Sivasakthi A², Suguna Perumalsamy³, D. Jagadeeswaran⁴, Dhanraj Ganapathy^{5*}

¹*Intern, Department of Prosthodontics, Saveetha Dental college and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, India, 151801051sdc.saveetha.com*

²*Bsc Allied Health Sciences Iyear, Department of Cardiovascular Perfusion Technology, Saveetha College of Allied Health Sciences, Saveetha Institute of Medical and Technical Sciences, Chennai, India, subascahs3032@gmail.com*

³*Lecturer, Department of Cardiovascular Perfusion Technology, Saveetha College of Allied Health Sciences, Saveetha Institute of Medical and Technical Sciences, Chennai - India.*

⁴*Principal & Professor, Saveetha College of Allied Health Sciences, Saveetha Institute of Medical and Technical Sciences, Chennai - India.*

⁵*Professor & HOD, Department of Prosthodontics, Saveetha Dental College & Hospital, Saveetha Institute of Medical and Technical Sciences, Chennai – India, dhanraj@saveetha.com*

Introduction: Hypertensive crisis is a case of massive, acute increase in blood pressure which directly endangers the patient's life, represented by symptoms of hypertension which developed suddenly and which is caused by various etiological moments. **Aim:** To access the knowledge level and create awareness about Hypertensive crisis among Allied health science students. **Material and Methods:** This cross-sectional research was conducted with a self-administered questionnaire containing ten questions distributed amongst 100 Allied Health science students. The questionnaire assessed the awareness about Hypertensive crisis among Allied health science students. The responses were recorded and analysed. **Results:** Among 100 Allied Health Sciences Students 84% of the students were aware of hypertensive crisis. 72% of the students were aware of etiology events of hypertensive crisis. 68% of the students were aware of damages caused by hypertensive crisis. 80% of the students were aware of limitations and management of hypertensive crisis. 75% of the students were aware, whether it will result in death of the patient. **Conclusion:** There is adequate awareness amongst Allied Health sciences about the Hypertensive Crisis. Enhanced awareness initiatives and Allied health sciences educational programmes together with increased importance for curriculum improvements that further promote knowledge and awareness about Hypertensive Crisis.

Keywords: Awareness, Hypertensive Crisis, Students, medicinal.

1. Introduction

Hypertension is a common chronic medical condition affecting over 65 million Americans. Uncontrolled hypertension can progress to a hypertensive crisis defined as a systolic blood pressure >180 mm Hg or a diastolic blood pressure >120 mm Hg. Hypertensive crisis can be further classified as a hypertensive urgency or hypertensive emergency depending on end-organ involvement including cardiac, renal, and neurologic injury.[1]

Hypertensive crises are divided into hypertensive urgencies and emergencies. Together they form a heterogeneous group of acute hypertensive disorders depending on the presence or type of target organs involved. Despite better treatment options for hypertension, hypertensive crisis and its associated complications remain relatively common. [2]

Hypertensive emergencies require prompt and aggressive treatment to prevent target organ damage and death. A variety of neurologic, cardiac, renal and other conditions may underlie a hypertensive crisis. A number of highly effective drugs are now available to treat hypertensive crises, including well-known agents like sodium nitroprusside and diazoxide, as well as newer drugs such as nifedipine and captopril. [3]

The most important factor that limits morbidity and mortality from these disorders is prompt and carefully considered therapy. Unfortunately, hypertensive emergencies and urgencies are among the most misunderstood and mismanaged of acute medical problems seen today. The primary goal of intervention in a hypertensive crisis is to safely reduce BP. Immediate reduction in BP is required only in patients with acute end-organ damage.[4]

Hypertensive urgency is a marked elevation in blood pressure without evidence of target organ damage, such as pulmonary edema, cardiac ischemia, neurologic deficits, or acute renal failure. Specific cutoffs have been proposed, such as systolic blood pressure greater than 180 mmHg or diastolic blood pressure greater than 110 mmHg, but these are arbitrarily derived numbers that have not been associated with short-term morbidity or mortality. [5]

Hypertensive crisis is an important medical condition that needs prompt attention and AHS students will be required in the management of this condition during the course of treatment with this disease. Hence this study was done with the aim to assess the knowledge level and create awareness about Hypertensive crisis among Allied health sciences students.

2. Materials and Methods:

This cross-sectional research was conducted with a self-administered questionnaire containing ten questions distributed amongst 100 Allied Health science students. The students were randomly selected across various disciplines of Allied Health Sciences. The study setting was designated in the university campus. The survey instrument was a questionnaire pre tested and evaluated for validity and reliability concerns.

The questionnaire included ten questions eliciting the demographic data through open ended responses and multiple choice questions for the other responses. The study was approved by the Institutional Ethical Committee and informed consent was obtained from the participants. The questionnaire was posted on an online platform and the identity of the respondents were

kept confidential.

The questionnaire assessed the awareness about Hypertensive crisis,their etiological events,causes to damage vital organs and death, limitations and management. The responses were recorded and analysed.There were no incomplete responses and no dropouts from the study.The final data obtained was organized,tabulated and subjected to statistical analysis.

The salient questions in the study are:

- 1.Do you know about Hypertensive Crisis?
- 2.Are you aware of the etiological events of Hypertensive Crisis?
- 3.Does Hypertensive crisis cause any damage to vital organs?
- 4.Do you aware of limitations and management of Hypertensive Crisis?
- 5.Does Hypertensive crisis cause death of the patient?

3. Results

Among 100 Allied health science students, 84% of the students are aware about hypertensive crisis (Fig-1). 72% of students know about the etiology events of hypertensive crisis(Fig-2). 68% of students were aware of limitations and management of hypertensive crisis, (Fig-3). 80 % of students are aware of the damages of vital organs caused by hypertensive crisis, (Fig-4). 75% of students know that hypertensive crisis can lead to death, (Fig-5).

Figure 1: awareness about Hypertensive Crisis

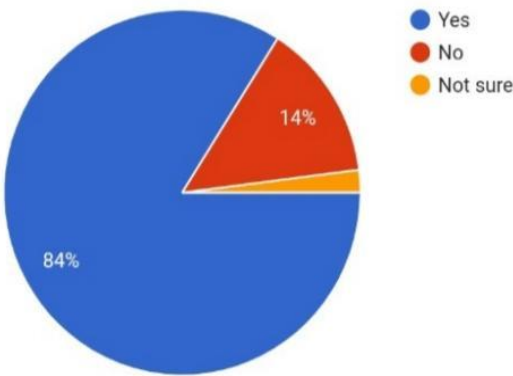


Figure 2: awareness about etiological events of hypertensive crisis.

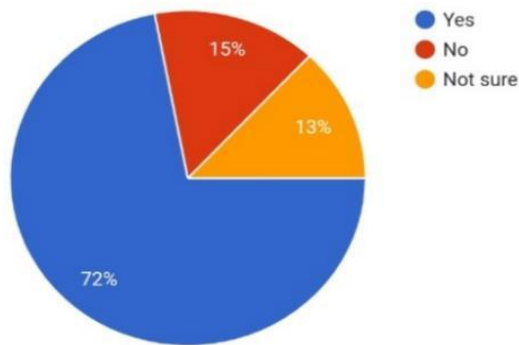


Figure 3: awareness about whether hypertensive crisis cause damages to vital organs.

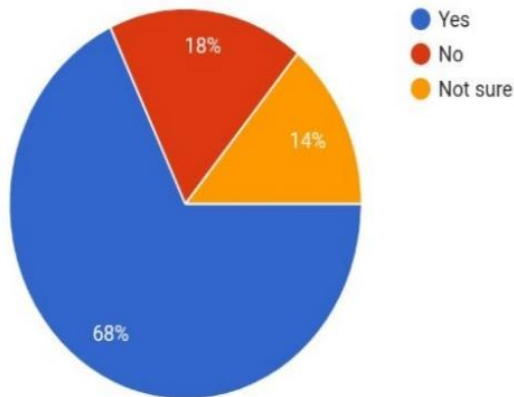


Figure 4: awareness about limitations and management of hypertensive crisis.

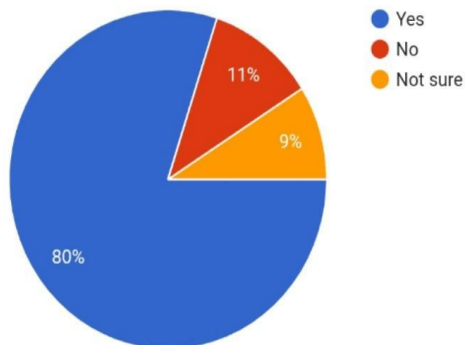
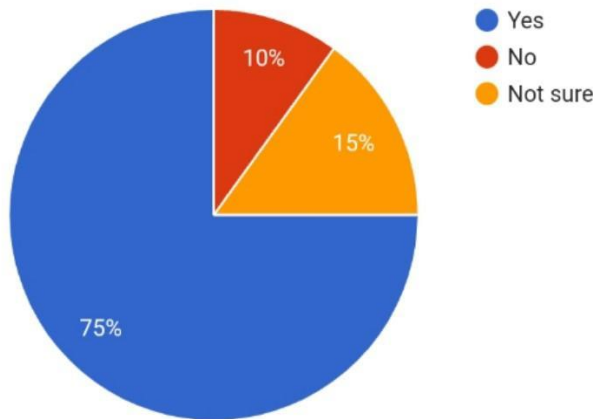


Figure 5: awareness about hypertensive crisis cause death of the patient.



4. Discussion

Hypertensive crisis is a severe clinical condition in which a sudden increase in arterial blood pressure can lead to acute vascular damage of vital organs, so timely detection, evaluation and adequate treatment are crucial to preventing permanent damage to vital organs. 84% of Students were aware about Hypertensive Crisis in our study. [6]

The etiology of acute elevations is variable. Noncompliance with antihypertensive therapy, use of sympathomimetics, and thyroid dysfunction are among the many possible causes of hypertensive urges. Even anxiety and pain may cause acute elevations in blood pressure and require a different treatment strategy.

Falsely elevated blood pressure due to poor equipment or technique is another potential etiology of elevated blood pressure readings that should be evaluated and remedied. [7] In our study 72% of the students were aware about the etiology of hypertensive crisis.

Patients with hypertensive urgency should be treated appropriately if not they can progress to hypertensive emergency with end-organ damage. Long term complications associated with uncontrolled hypertension include:

Myocardial infarction, Stroke, Heart failure, Renal failure, Hypertensive retinopathy, Dementia, Aneurysms [8]. In our study 68% of students aware that hypertensive crisis causing damages to the vital organs.

Rapid-acting IV antihypertensive agents are available, including clevidipine, labetalol, esmolol, fenoldopam, nicardipine, and sodium nitroprusside. Newer agents such as clevidipine have considerable advantages compared with other available agents in the management of hypertensive crises. Sodium nitroprusside is an extremely toxic drug, and its use in the treatment of hypertensive emergencies should be avoided. Likewise, nifedipine, nitroglycerin, and hydralazine should not to be considered first-line therapies in the management of

hypertensive crises because these agents are associated with significant toxicities and/or side effects. [9] In our study 80% of students were aware about the management of hypertensive crisis. Patients with hypertensive urgency are at increased risk for long-term morbidity and mortality. Untreated hypertension is notorious for increasing the risk of mortality and is often described as a silent killer. The long-term prognosis of patients with hypertensive urgencies or emergencies is not favorable. [10]. In our study 75% of students were aware that hypertensive crisis leads to death.

5. Conclusion

There is adequate awareness amongst Allied Health sciences about the Hypertensive Crisis. However, enhanced awareness initiatives and Allied health sciences educational programmes together with increased importance for curriculum improvements that further promote knowledge and awareness about Hypertensive Crisis should be initiated for further understanding and benefits.

References

1. Rodriguez MA, Kumar SK, De Caro M. Hypertensive crisis. *Cardiol Rev.* 2010 Mar-Apr;18(2):102-7.
2. Van den Born BJ, Beutler JJ, Gaillard CA, de Gooijer A, van den Meiracker AH, Kroon AA. Dutch guideline for the management of hypertensive crisis -- 2010 revision. *Neth J Med.* 2011 May.
3. Burris JF. Hypertensive emergencies. *Am Fam Physician.* 1985 Jul;32(1):97-109.
4. Ferguson RK, Vlasses PH. Hypertensive emergencies and urgencies. *JAMA.* 1986 Mar 28.
5. Papadopoulos DP, Mourouzis I, Thomopoulos C, Makris T, Papademetriou V. Hypertension crisis. *Blood Press.* 2010 Dec;19(6):328-36. doi: 10.3109/08037051.2010.488052. Epub 2010 May 27.
6. Levy PD, Mahn JJ, Miller J, Shelby A, Brody A, Davidson R, Burla MJ, Marinica A, Carroll J, Purakal J, Flack JM, Welch RD. *Emerg Med.* 2015 Sep;33(9):1219-24. [PubMed]
7. Frei SP, Burmeister DB, Coil JF. 2013 Sep
8. Pickering TG, Hall JE, Appel LJ, Falkner BE, Graves J, Hill MN, Jones DW, Kurtz T, Sheps SG, Roccella EJ., 2005 Jan
9. Slovis CM, Reddi AS. Increased blood pressure without evidence of acute end organ damage. *Ann Emerg Med.* 2008 Mar;51(3 Suppl):S7-9. [PubMed]
10. Gera, Aswani Kumar, and Rajesh Kumar Burra. "Evaluation of design and insertion analysis of a conical shaped polymeric based microneedle for transdermal drug delivery applications." *Acta Innovations* 46 (2023): 53-64.
11. Guiga H, Decroux C, Michelet P, Loundou A, Cornand D, Silhol F, Vaisse B, Sarlon-Bartoli G. Hospital and out-of-hospital mortality in 670 hypertensive emergencies and urgencies. *J Clin Hypertens (Greenwich).* 2017 Nov;19(11):1137-1142. [PMC free article] [PubMed]