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ETHICAL CHALLENEGES OF EMERGENCY NEUROSURGERY IN REMOTE RURAL AREAS OF NORTH-EAST INDIA

Neurosurger

Saikia Amrit Kumar	Assistant Professor, Department Of Neurosurgery, Jorhat Medical College
Timung Longkiri*	Registrar, Department Of Neurosurgery, Jorhat Medical College *Corresponding Author
Choudhary Yashwant Kumar	Registrar, Department Of Neurosurgery, Jorhat Medical College
R Ashwini	Senior Resident, Department Of Neurosurgery, Jorhat Medical College

ABSTRACT

Aim: To evaluate the ethical challenges of emergency neurosurgical services in a resource constrained remote rural area of northeast India. This report details our initial experiences and profile of emergency neurosurgery in our Centre, Jorhat Medical College Hospital. **Method and materials:** A retrospective audit of functioning of emergency neurosurgical service was done in Jorhat medical college hospital from June 2015 to May 2018 for a period of 3 years. Patients evaluated and treated in neurosurgery department were included in the study. Data was collected using patients' data sheets and presented in tables and graphs. Simple descriptive data analysis was done with relevant statistical tools. **Results** and observation: During the study period a single neurosurgeon was operating. There was no dedicated ward and ICU demarcated for neurosurgery. None of the operation theatre nurses had prior neurosurgical exposure. A total of 4680 emergency patients were evaluated by a single neurosurgeon during the study period. 668(14.27%; 1in 7) patients were left against medical advice. 1264 (27.12%) patients were transferred out to other hospital. 2748 (58.71%) patients continued treatment in Jorhat medical College hospital. 1716 (62.45%) were males and 1032(37.55%) patients were females. Total 213 patients (7.75%) were undergone operative neurosurgical management. 119(4.33%) patients were died. Most of the patients' autonomy to give consent for surgery were transferred to relatives. **Conclusion:** The study shows emergency neurosurgery is possible to perform with a limited facility and manpower, even in resource constrained remote rural areas. Sometimes it is ethically challenging whether to keep the critically ill patients or transfer to other far long neuro centers. We need to find out our own driveways of challenges. These findings will encourage young neurosurgeons to work in remote areas.

KEYWORDS

Ethics; Neurosurgery

INTRODUCTION

There is no universally agreed-upon definition of ethics. It often refers to the several methods used to comprehend and analyze moral conduct.The term "four pillars of bioethics" alludes to the principles of autonomy, non-maleficence, beneficence, and justice [1]. Another facet of bioethics is to the principles of dignity and honesty [2].

Neurosurgery in rural practice is a difficult job. Emergency neurosurgery in rural and remote areas, may be, ethically challenging but not impossible.Neurosurgical practices in rural set up bears a special set of difficulties and challenges with limited facilities. Inadequate infrastructures, low health care investment and shortage of trained manpower are also some of the unique problems in rural practice. Developing a teamwork is an intricate task.

Neurosurgeons regularly face complex ethical, moral, and religious dilemmas while making medical decisions for patients with severe head injuries, and those dealing with quality-of-life and end-of-life concerns.There is a paucity of literature in India to address and quantify this issue.

Aims & Objectives

This report details our initial experiences and profile of emergency neurosurgery in our Centre, Jorhat Medical College Hospital. The objective of the study is

- to evaluate the possibilities of emergency neurosurgical services in a resource constrained remote rural area of northeast India
- to evaluate the ethical challenges of emergency neurosurgery in rural practice

METHOD AND MATERIALS:

This is a retrospective audit of functioning of emergency neurosurgical services.

Place of study:

The study was conducted in Jorhat medical college hospital.

Period of study:

The data were collected retrospectively for the initial 3 years Period of neurosurgery Department in Jorhat Medical College Hospital with effect from June 2015 to May 2018.

Data collection:

Those Patients evaluated and treated in neurosurgery department were included in the study. Data were collected using patients' data sheets from the case files available in medical record office. Data were recorded in a predefined proforma.

Statistical analysis

Data were presented in tables and graphs. Simple descriptive data analysis was done relevant with statistical tools.

RESULTS AND OBSERVATION:

During the study period, a single neurosurgeon was operating in Jorhat Medical College&Hospital. There was no dedicated ward and ICU demarcated for neurosurgery. Neurosurgical operative procedures were performed in General Surgery operation theatre. None of the operation theatre scrub nurses had prior neurosurgical exposure.

A total of 4680 emergency patients were evaluated by a single neurosurgeon during the study period. 668(14.27%) patients had left against medical advice due to clinical nihilism. 1264 (27.12%) patients were transferred out to other hospitals.

2748 (58.71%) patients continued treatment in Jorhat medical College hospital and were included in our study. 1716 (62.45%) were males and 1032(37.55%) patients were females.

Total 213 patients (7.75%) were undergone operative neurosurgical management.

- 76.52% (163/213) operative procedure was craniotomy for head injury
- 9.86% (21/213) burr hole for Ch. SDH
- 6.10% (13/213) EVD
- 4.22% (9/213) laminectomy
- 3.28% (7/213) craniotomy for ICH

204 patients (95.77%) of operated patients were unconscious on presentation and consents for operations were given by relatives. All the laminectomy patients (n9) transferred their rights to give consent to their relatives.

Out of 2748 patients continued treatment in JMCH a total of 119

(4.33%) patients died.

Table No.1: Total numbers patients evaluated and treated

Patients	Numbers	Percentage
Admitted	2748	58.71%
LAMA	668	14.27%
Ref/transfer	1264	27.12%
Total	4680	100%

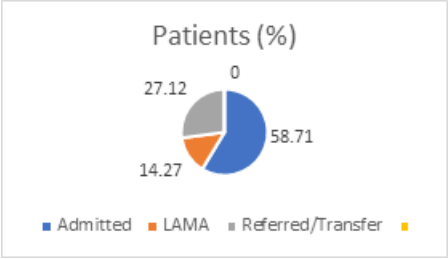

Figure 1: Distribution of total patients

Table No.2: Gender distribution

Gender	Numbers	Percentage
Male	1716	62.45%
Female	1032	37.55%

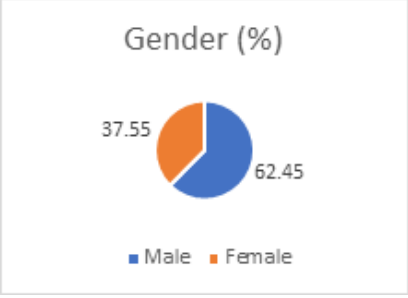

Figure 2: Gender distribution

Table No. 3: Types of procedure performed

Procedure performed	Numbers	Percentage
Craniotomy for head injury	163	76.52%
Burr hole for Ch. SDH	21	9.86%
External Ventricular Drainage	13	6.10%
Laminectomy	9	4.22%
Craniotomy for ICH	7	3.28%
Total	213	100

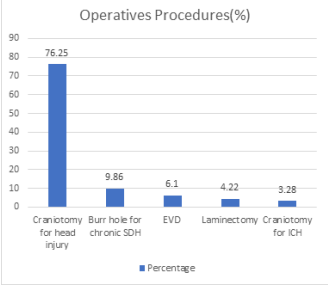

Figure 3: Types of procedure performed

DISCUSSION

Jorhat Medical College and Hospital is a rural setup in far remote areas of Northeast India. A significant amount of patients (4680) were admitted for neurosurgical intervention, neurotrauma being one of the leading causes. During the period of study, a single neurosurgeon was working in the centre without any dedicated Neurosurgery ward or ICU. There was lack of properly trained operation theatre scrub nurses and other supporting staff as no one had prior neurosurgical exposure and training.

668 patients (14.27%) left against medical advice due to clinical nihilism and 2748 patients (58.71%) continued treatment out of which 213 patients (7.75%) were operated upon.

Obtaining a consent for any neurosurgical intervention poses a great challenge for the neurosurgeon. Several factors influence the patient or their caregivers at the time of giving consent like socio cultural variables, religion and financial constraints. These factors cause delay in obtaining consent and leadto loss of precious time for any intervention. Controversy may arise between the patient and the neurosurgeon as a result of futility. When a neurosurgeon decides not to proceed with a surgery owing to the expected outcome, which may be different from what the patient or their families believe, and vice versa. Another component pertains to the act of withholding or withdrawing life support. Another issue arises when patients face financial constraints or lack adequate health insurance, making it difficult to continue their therapy. This phenomenon is prevalent in rural areas characterized by a poor socio-economic status.

Taking into account of all the shortcomings, the neurosurgeon faces another dilemma of whether to manage or operate the patient where no proper trained staff or infrastructure is available which might lead to suboptimal patient care or even deterioration of the patient in some scenario, the other option being referral or transfer of patient to other nearest centre being more than 2 hours journey of our place of study which has risk of worsening the clinical status of the patient during the transport

Patient autonomy refers to the action and willingness of a patient to make decisions regarding their healthcare. It is the fundamental component of informed consent. In order to achieve autonomy, it is necessary for the patient to have a thorough understanding of the advantages, drawbacks, and potential alternative approaches to the treatment of a certain neurosurgical condition [1]. The abbreviation PARQA, which stands for procedure, alternative, risk, question, and advanced life plan, is a useful tool for doing thorough patient counseling [3].

The majority of neurosurgical patients in rural areas are those with neurotrauma, some of whom may be unconscious. This has a significant impact on the patients' autonomy, which is a frequent occurrence in Jorhat. 204 patients (95.77%) of operated patients were unconscious on presentation and consents for operations were given by relatives. All the laminectomy patients transferred their rights to give consent to their next of kin. Socio-cultural variables, such as gender inequity, also impact the autonomy of rural patients. Some adult women may willingly relinquish their autonomy and transfer it to the male counterpart, who may not behave in the patient's best interest. It could potentially create a conflict of interest. Religion can provide a significant challenge as certain religious views may conflict with fundamental medical principles, thereby impeding the ability to obtain permission. For example, the belief in non-shaving of hair in some religion leads patient's refusal for neurosurgical intervention. In certain cases, individuals may choose to delegate their autonomy to their spouse, seeking their agreement before using it. Illiteracy is a significant obstacle in rural areas, hindering the transmission, circulation, and distribution of knowledge. This consequently impacts the autonomy of patients.

The neurosurgeon practicing in the rural region encounters obstacles such as a deficiency or insufficiency of highly skilled personnel. Additionally, there is a deficiency or insufficiency of current neurosurgical equipment. Neurosurgical operations in remote rural areas are less safe in this context compared to urban areas. The neurosurgeon is confronted with the ethical dilemma of whether to refer or manage the patient, taking into consideration the difficulties associated with transporting a patient in an emergency situation. [4]The neurosurgeon practicing in a rural setting encounters numerous hurdles, in addition to the basic issues confronted by their urban counterparts. In our case, a single neurosurgeon working in our rural medical college has significant workload causing tremendous stress and lack of personal and family time. This situation presents significant ethical concerns.[5]

Justice is defined as the concept of what is equitable or merited, or what an individual has a rightful claim to. The distribution and allocation of healthcare resources prioritizing the healthcare services inside institutions are matters in which the principle of justice is involved [1]. This fundamental element of bioethics directs moral decision-making to provide an equitable treatment for all. Dignity should be upheld in all aspects of neurosurgery, including interactions with colleagues and other members of the healthcare team.

CONCLUSION

Engaging in neurosurgery in a rural environment is a difficult task with numerous ethical concerns. Emergency neurosurgery may be ethically challenging in remote rural areas but not impossible. It is possible to performemergency neurosurgery with a limited facility and manpower, even in resource constrained remote rural areas. Sometimes it is ethically challenging whether to keep the critically ill patients or transfer to other far long neuro centers. We need to find out our own driveways of challenges.These findings will encourage young neurosurgeons to work in remote areas.

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