Types of Neurosurgical Patients Requiring Tracheostomy- Institution Based Study.

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Background and purpose: Tracheostomy is common surgical procedure among neurosurgical patients who are ventilator dependent for prolonged period of time in neuro ICU. With the objective to analyze various type of neurosurgical patients requiring tracheostomy this study was performed. Material and method: This is a Crosssectional, Analytical study with Non probability consecutive sampling over the duration of 2 years. Association between age vs categories of different pathologies and Gender is categories of different neurological pathologies were analysed using Chi square test/fisher’s exact test wherever applicable using SPSS20. Result: There were total of 85 patients who underwent tracheostomy for various types of pathologies in our institute over the duration of two years. Mean age of patients who undergone tracheostomy was 45.26 (SD 18.9) years and they ranged between 8 and 86 years. Among all these categories head injuries accounted for 45% of cases followed by ICH (28%) Conclusion: Head Injury and intracerebral hemorrhage seems to be the common pathology requiring tracheostomy in tertiary neurosurgical centre. Young and male patients are more predominant in this study.

Key words: Neurosurgical ICU, Tracheostomy, head injury

Data collection and analysis
All the consecutive cases of tracheostomy done in neurological patients were collected over the study duration at our centre and data collection was done in preformed Proforma.

Quantitative data like age was presented as mean and standard deviation (S.D) & qualitative data like Gender and categories of different neurological pathologies were presented as percentage. Association between age vs categories of different pathologies and Gender is categories of different neurological pathologies were analysed using Chi square test/ Fisher’s exact test wherever applicable using SPSS20.

Results
There were total of 85 patients who underwent tracheostomy for various types of pathologies in our institute over the duration of two years. Mean age of patients who undergone tracheostomy was 45.26 (SD 18.9) years and they ranged between 8 and 86 years. Among all these categories head injuries accounted for 45% of cases followed by ICH (28%) Head Injury and intracerebral hemorrhage seems to be the common pathology requiring tracheostomy in tertiary neurosurgical centre. Young and male patients are more predominant in this study.
The mean age of the patients who underwent tracheostomy was 45.26 (SD 18.9) years and they ranged between 8 and 86 years. There was male predominance who accounted around 79% (Figure 1). The different categories of diseases that needed tracheostomy were Head injuries, intracerebral hemorrhages, spinal injuries, malignant middle cerebral infarction and others. Patients categorized in “others” included cases like encephalitis, hydrocephalus, aneurysms, tetanus, tumors, and post CPR hypoxic brain injuries. Among all these categories head injuries accounted for 45% of cases followed by ICH (28%) (Figure 2).

![Figure 1: Distribution of Gender](image1)

![Figure 2: Distribution of Diseases](image2)

There was no significant association between age and different categories of pathologies which was analysed using Chi Square test (Table 1). Similarly, gender when analyzed with different categories of diseases showed no significant findings (Table 2).

**Discussion**

The mean age of the patients who required tracheostomy in neurosurgical ICU was 45.26 (S.D 18.9) years. This younger age might be due to high prevalence of severely Head Injured young patients (45%) in this study. The incidence of Head Injury is common in young patients throughout the world; and so the tracheostomy or other supportive surgical procedure.

This study showed higher prevalence of the male patients requiring tracheostomy. The higher percentage of the male Gender might be due to high involvement of them in motor vehicle accident in Nepal. In different neurosurgical centre the pattern of neurosurgical patients differ like tertiary care centre they might have higher prevalence of neurooncological cases but in our part of the world most of the neurosurgical centre have trauma related patients. This seems to be true in our institute as well. As in this study the tracheostomy prevalence is higher in Head Injury (45%) followed by Intracerebral hemorrhage (28%).

Although the mean age was 45.26(S.D 18.9) year and male predominance (79%) in this study there was no significant association with different categories of pathologies who underwent tracheostomy; hence no added risk seems to be involved.

**Conclusion**

Head Injury and intracerebral hemorrhage seems to be the common pathology requiring tracheostomy in tertiary neurosurgical centre. Young and male patients are more predominant in this study.
Table 1: Association of age with different categories of diseases.

| Age category | Head Injury | Intracerebral Hematoma | Malignant MCA Infarction | Others | Spinal Injury | P Value |
|--------------|-------------|------------------------|----------------------------|--------|---------------|---------|
| <10          | 1           | 0                      | 0                          | 1      | 0             | 2       |
| 10-19        | 3           | 0                      | 0                          | 0      | 0             | 3       |
| 20-29        | 12          | 0                      | 0                          | 3      | 1             | 16      |
| 30-39        | 9           | 0                      | 1                          | 1      | 1             | 12      |
| 40-49        | 5           | 7                      | 1                          | 1      | 2             | 16      |
| 50-59        | 4           | 4                      | 1                          | 3      | 1             | 13      |
| 60-69        | 2           | 7                      | 0                          | 4      | 1             | 14      |
| 70-79        | 2           | 4                      | 0                          | 0      | 0             | 6       |
| 80-89        | 0           | 2                      | 0                          | 0      | 1             | 3       |
| Total        | 38          | 24                     | 3                          | 14     | 6             | 85      |

Table 2: Association of gender with different categories of diseases.

| Gender  | Head Injury | Intracerebral Hematoma | Malignant MCA Infarction | Others | Spinal Injury | Total | P Value |
|---------|-------------|------------------------|----------------------------|--------|---------------|-------|---------|
| Female  | 5           | 9                      | 0                          | 4      | 0             | 18    | 0.1     |
| Male    | 33          | 15                     | 3                          | 10     | 6             | 67    |         |
| Total   | 38          | 24                     | 3                          | 14     | 6             | 85    |         |

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