

Post-Stroke Seizures in Srinagarind Hospital

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Introduction

- More than 50% of epilepsy in elderly cause by stroke
- 5-20% of all stroke will have subsequent seizures
- Early/late (2 weeks) onset seizures
- Risk factor; subtype, location, severity
- Post-stroke seizures impact on early mortality and outcome

Method

- Retrospective study
- Stroke patients during 2000-2004
- Inclusion; cerebral infarction, ICH from HT, AVM, aneurysm
- Exclusion; trauma, SAH, CVST, seizure with explain by other causes
- Sample size 650 cases

Method

- Medical record; OPD, IPD
- Telephone, mailing questionnaire
- Demographics, type of stroke, brain imaging
- Seizure, recurrent stroke
- Mortality

Objective

- To study prevalence of post-stroke seizures
- Associated factors of post-stroke seizures
- Mortality after stroke

Results

- 1413 IPD stroke patients
- Random sampling 650 patients
- 495/650 medical records were found
- 372/495 patients were complete study
- Male: Female = 218 : 154 (58.6 : 41.4%)
- Mean age 58.9 ± 15.3

Results

| Character | Number (%) (n=372) |
|--|-----------------------|
| Sex | |
| Male | 218 (58.6) |
| Female | 154 (41.4) |
| Age (years) mean 58.93, SD 15.3, min 16, max 91 | |
| 16-30 | 22 (5.9) |
| 31-45 | 42 (11.3) |
| 46-60 | 113 (30.4) |
| 61-75 | 147 (39.5) |
| >75 | 46 (12.4) |

Results

| Character | Number (%) (n=372) |
|---------------------------|-----------------------|
| Underlying disease | |
| Yes | 302 (81.2) |
| No | 70 (18.8) |
| Hypertension | 176 (58.3) |
| DM | 109 (36.1) |
| Dyslipidemia | 54 (17.9) |
| Heart diseases | 106 (35.1) |
| Atrial fibrillation | 51 (16.9) |
| Ischemic heart disease | 31 (10.3) |
| Valvular heart diseases | 48 (15.9) |
| Cardiomyopathy | 18 (5.9) |
| Other heart diseases | 4 (1.3) |
| Malignancy | 18 (5.9) |
| Other diseases | 78 (25.9) |

Results

| Stroke subtype | Number (%) (n=372) |
|----------------------------------|-----------------------|
| Ischemic stroke | 271 (72.8) |
| Cerebral thrombosis | 194 (71.6) |
| Cerebral embolism | 70 (25.8) |
| Other causes | 5 (1.9) |
| Unknown | 2 (0.7) |
| Hemorrhagic stroke | 98 (26.3) |
| Hypertensive ICH | 50 (51.0) |
| Cerebral aneurysm | 4 (4.1) |
| Cerebral AVM | 7 (7.1) |
| Other causes | 12 (12.3) |
| Unknown | 25 (25.5) |
| Unknown of stroke subtype | 3 (0.8) |

Results

| CT brain location | Stroke subtype | |
|----------------------|---------------------|------------------------|
| | Ischemic stroke (%) | Hemorrhagic stroke (%) |
| Cortical | 74 (27.3) | 33 (33.7) |
| Subcortical | 30 (11.1) | 6 (26.5) |
| Cerebellum | 33 (12.2) | 22 (22.5) |
| Brain stem | 5 (1.8) | 6 (6.1) |
| Multiple site | 82 (30.3) | 6 (6.1) |
| No data | 18 (6.6) | 5 (5.1) |

Results

| Duration of post stroke seizure | Number (%) (n=58) |
|---------------------------------|----------------------|
| 0 day - 14 days | 35 (60.3) |
| 15 days - 1 years | 13 (22.4) |
| 1 year - 2 years | 2 (3.45) |
| More than 2 years | 2 (3.45) |
| No data | 6 (10.4) |

Results

| Variables | Seizure status (n) | | p value |
|-------------------------|--------------------|------------|---------|
| | Seizure | No-seizure | |
| Demographic data | | | |
| Age (years) | | | 0.83 |
| 16 - 30 | 5 | 9 | |
| 31 - 45 | 9 | 20 | |
| 46 - 60 | 20 | 45 | |
| 61 - 75 | 20 | 55 | |
| > 75 | 4 | 16 | |
| Sex | | | 0.89 |
| Male | 34 | 87 | |
| Female | 24 | 59 | |

Results

| Underlying diseases | | Seizure | No-seizure | P value |
|---------------------|-----|---------|------------|---------|
| DM | Yes | 15 | 47 | 0.37 |
| | No | 43 | 99 | |
| Hypertension | Yes | 23 | 72 | 0.21 |
| | No | 35 | 74 | |
| Dyslipidemia | Yes | 2 | 31 | .0007 |
| | No | 56 | 115 | |
| Heart diseases | Yes | 22 | 47 | 0.43 |
| | No | 36 | 99 | |
| Atrial fibrillation | Yes | 12 | 26 | 0.63 |
| | No | 46 | 120 | |

Underlying diseases

| Underlying diseases | | Seizure | No-seizure | P value |
|-------------------------|-----|---------|------------|---------|
| Ischemic heart diseases | Yes | 8 | 14 | 0.38 |
| | No | 50 | 132 | |
| Valvular heart diseases | Yes | 10 | 19 | 0.43 |
| | No | 48 | 127 | |
| Cardiomyopathy | Yes | 3 | 9 | 0.54 |
| | No | 55 | 137 | |
| Other heart diseases | Yes | 0 | 2 | 0.51 |
| | No | 58 | 144 | |
| Malignancy | Yes | 2 | 8 | 0.42 |
| | No | 56 | 138 | |

Results

| Stroke type | Seizure | No-seizure | P value |
|----------------------------------|---------|------------|---------|
| Ischemic stroke | 36 | 114 | 0.015 |
| Hemorrhagic stroke | 22 | 31 | |
| Stroke subtype | Seizure | No-seizure | P value |
| Cerebral thrombosis | 20 | 79 | 0.055 |
| Cerebral embolism | 15 | 31 | |
| Other ischemic stroke | 1 | 3 | |
| Hypertensive cerebral hemorrhage | 9 | 16 | |
| Ruptured AVM | 1 | 4 | |
| Ruptured aneurysm | 3 | 1 | |
| Other causes | 3 | 6 | |
| Unknown ICH | 6 | 4 | |

Results

| Stroke location | Seizure (n) | Non-seizure (n) | P value |
|------------------|-------------|-----------------|---------|
| Normal CT brain | 2 | 11 | 0.05 |
| Cortical area | 26 | 33 | |
| Subcortical area | 8 | 26 | |
| Cerebellum | 6 | 28 | |
| Brain stem | 1 | 5 | |
| Multiple sites | 13 | 35 | |
| Mortality | Seizure (n) | Non-seizure (n) | P value |
| Alive | 27 | 31 | < 0.001 |
| Dead | 104 | 42 | |

Results

- Recurrent stroke were 16.4% with 5 years
- Mean duration of first recurrent stroke 2.07 years
- National Health Security Office
 - overall mortality rate 39.5%
 - at 30 days 7.5%
 - at 1 year 22.8
- Post-stroke seizure were significantly associated with mortality

Discussion and conclusion

- Prevalence of post-stroke seizures were 15.9 %
- Associated risk: ICU, cortical area, no dyslipidemia
- Recurrent stroke rate at 1 month 1.34%, 6 months 5.1%
- Mortality rate at 30 day 7.5 %, 1 year 22.8%