First Year of 24/7 ASU and Stroke Thrombolytic Service

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IV Thrombolysis in Acute Stroke

1995 NINDS

2008 ECASS 3

STARS, SITS-MOST, SITS-ISTR …

Utilization rates:

Germany	8.4 %
Canada	8.2 %
USA	5.2 %
China	1.6 %

IV Thrombolysis in Acute Stroke

- Improves patient outcome
- Technically not demanding
- Low utilization rate despite available for over 10 years
- Short therapeutic time-window
- Needs efficient pathway for prioritization of resources
- Not without risk
- Requires close monitoring in designated acute stroke unit (ASU)

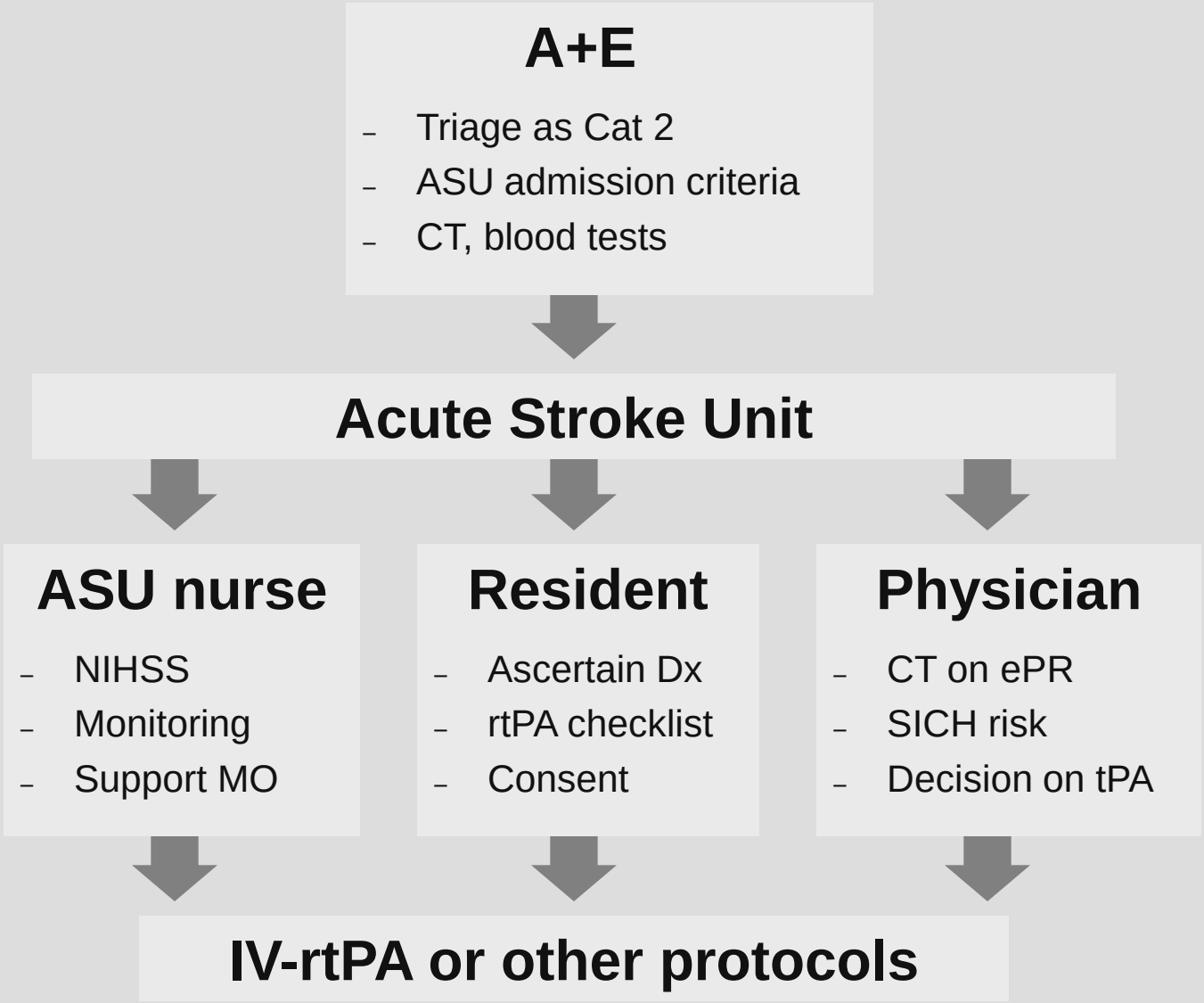
IV Thrombolytic Service in QMH

1998 IV-rtPA programme as clinical study

2008 Stroke pathway
Setting up of ASU (2 beds), routine IV-rtPA during office hours

2010 IV-rtPA protocol supported by off-site HA neurologists through remote access ePR, gradual extension of service hours

From 09-2011, expansion of ASU to 12-beds unit, 24/7 direct A+E admission and IV-rtPA.


A+E
Triage as Cat 2
ASU admission criteria
CT, blood tests
Acute Stroke Unit
ASU nurse
NIHSS
Monitoring
Support MO
Resident
Ascertain Dx
rtPA checklist
Consent
Physician
CT on ePR
SICH risk
Decision on tPA
IV-rtPA or other protocols

1st year of 24/7 IV-rtPA

- Audit data of 24/7 IV-rtPA
- Study period: 09-2011 to 08-2012
- To assess the feasibility of our service model and ASU pathway

- 447 direct admissions from A+E
- 383 (86 %) had discharge diagnosis of stroke or TIA
- Mean age 71 (32 to 98), M : F = 224 : 159

Results 1

Out of the 383 patients with stroke or TIA

- 276 (72 %) were ischemic stroke
- 119 (43 %) presented within 3 hrs of symptom onset
- Out of these 119 patients, 110 (92 %) had CT performed and arrived at ASU before the 3 hrs time-window expired
- 46 were considered suitable candidate/without contraindication against IV-rtPA according to protocol and after consulting the physician

Results 2

- Various reasons for withholding rtPA in the 64 ineligible patients:
  - Mild deficits = 28
  - Rapid improvement = 5
  - Poor premorbid = 4
  - Recent stroke = 2
  - Hx of ICH/SAH = 2
  - On anticoagulants = 5
  - Recent surgery = 1
  - Uncontrolled BP = 1
  - Early ischemic change > 1/3 MCA = 7
  - High risk perceived by physician = 3
  - Uncertain Dx = 3
  - Multiple reasons = 3

Results 3

- For the 46 suitable candidates for IV rtPA, 43 consented to treatment (3 refused)
- 2 more cases that presented beyond 3 hrs were treated
- Total number of cases treated = 45
  - 16.3 % of all ischemic strokes
  - 36.1 % of those who presented within 3 hrs
  - 86.5 % of those without identified contra-indications
  - Mean age 74 (45 to 98, 40 % were post-80)

Results 4

- For the 45 cases treated with IV-rtPA
- Mean timings
  - Onset-to-door = 71 min (0 to 230)
  - Door-to-CT = 29 min (7 to 89)
  - CT-to-ASU = 26 min (3 to 103)
  - ASU-to-needle = 46 min (15 to 95)
  - Door-to-needle = 102 min (54 to 177)

AHA/ASA guidelines 2013

- Door-to-needle $\leq$ 60 min (80 % compliance)

Results 5

- For the 45 cases treated with IV-rtPA
  - Median NIHSS pre-treatment = 17 (NINDS 14, SITS-MOST 12, ECASS 11)
  - 62 % were TACI
  - Complications: SICH 2 (4.4 %, both fatal), missed wrist fracture 1, tongue hematoma 1
  - Median mRS on discharge = 4

    mRS $\leq$ 2 (i.e., independent) = 14 (32 %)
  - 58 % eventually discharged home

Results 6

- 22 cases (49 %) were managed during office hours and 23 cases (51 %) after office hours
- No significant difference between door-to-needle time, complication rate, mRS (after corrected for NIHSS) and 30-days mortality

Conclusions 1

- The QMH ASU service model and audit data of acute stroke thrombolysis presented.
- A thrifty model 24/7 IV-rtPA programme enabled through reorganization of existing resources and more elbow grease on all those involved, rather than additional resources allocated from central.
- Participation of frontline residents: Acute stroke management is incorporated into the core competency of general medical training.

Conclusions 2

- Our service model facilitated:
  - High diagnostic accuracy (86 %)
  - Rapid assessment for stroke thrombolysis
  - Reliable coverage (92 %), and
  - High utilization rate (16.3 %)
- However, relatively long door-to-needle time (i.e., additional resource, please.)

The End

Data collection: Miss Fanny Ip

Data entry and analysis:
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