

# NCCU

- normal EVD output
- MELAS
- scores for predicting ICH outcomes
  - ICH score: predicts mortality at 1 month
    - comprised of GCS, age > 80, ICH vol > 30 mL, IVH, infratentorial hemorrhage origin
  - FUNC score: 90 day function
    - comprised of ICH volume, age, ICH location, GCS, pre-ICH cognitive impairment
- calculating IVH size
- Spetzler-Martin grading system for AVMs
- digital subtraction angiography
- Parinaud syndrome
- bicaudate index
- SAH grading
  - Hunt Hess
  - modified fisher
- normal pressure perfusion breakthrough
  - AVM resection and BP goals
  - Hydrocephalus ex vacuo vs obstructive hydro

nimodipine used for vasospasm ppx for aneurysm-related SAH. Not clear re: AVM.

## ICU Improvements

- vent reporting
- limit to ACTIVE, RELEVANT ICU issues
- for A/P, ACTIVE ICU problem and status of what's keeping them here
- MINIMIZE computer use
  - especially as you get to know patients
  - use primarily for DATA reporting (vitals, labs)
- chronic issues (only ACTIVE, relevant ICU issues)
  - e.g., ACI, hypothyroid
  - "no acute issues"
- "vital signs stable"
- GFAP

## To Read

- <https://doi.org/10.34197/ats-scholar.2020-0019PS>
- PVAT (pulmonary velocity acceleration time)

RC711 .W469 2017, RC776.P87 P854 2004, RC756 .W45 2019

- [Vent Waveforms](#)

## Alveolar Gas Equation

$$P_{AO_2} = F_{iO_2}(P_{atm} - P_{H_2O}) - \frac{P_{aCO_2}}{RQ}$$

substituting back in to  $RQ$  equation:  $RQ = \frac{P_{ACO_2}}{\frac{V_{AP_{ACO_2}}}{kV_{O_2}} - \frac{V_{O_2}}{V_A}k}$

$V_T = V_A + V_D$ , where  $V_A = 350$  and  $V_D = 150$

## Dead Space Fraction

$$\frac{V_D}{V_T} = \frac{P_{ACO_2} - P_{ECO_2}}{P_{ACO_2}}$$

Formal measurement of  $P_{ECO_2}$  requires volumetric capnography, which requires a capable ventilator or a dedicated measurement device.

Thankfull,  $P_{ECO_2} \approx ETCO_2$ , so an approximation would  $\frac{V_D}{V_T} = \frac{P_{ACO_2} - ETCO_2}{P_{ACO_2}}$

## Alveolar ventilation

$$P_{AO_2} = F_{iO_2}(P_{atm} - P_{H_2O}) - \frac{P_{AO_2}}{RQ}$$

$$\dot{V}_A = k \frac{\dot{V}CO_2}{P_{ACO_2}} \implies \dot{V}CO_2 = \frac{\dot{V}_{AP_{ACO_2}}}{k}$$

To convert  $F_{ACO_2}$  into  $P_{ACO_2}$ , we have  $F_{ACO_2}(P_{atm} - P_{H_2O}) = P_{ACO_2}$  Similarly, using  $F_{ECO_2}$ , we can show  $P_{ECO_2} = F_{ECO_2}(P_{atm} - P_{H_2O})$

$$Volume_{\{expiredCO_2\}} = Volume_{\{producedAlvCO_2\}}$$

$$V_{TF_{ECO_2}} = V_{AF_{ACO_2}}$$

$$V_{TF_{ECO_2}} = (V_T - V_D)F_{ACO_2}$$
, and we can convert  $F_{ACO_2}$  into  $P_{ACO_2}$

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