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Acute Hypercapnic Respiratory Failure (AHRF) i.e po2 <8kPa, PH <7.35 and pCo2 > 6.5 kPa

PH <7.25 and pCo2 >6.5 kPa or Any Type 1 Resp. Failure
Low threshold to call ICU if no immediate improvement

Does this patient have a diagnosis of COPD, Bronchiectasis or chest wall deformity?

PH <7.35 and pCo2 >6.5 kPa
AND
Asthma or no evidence of underlying lung disease or pneumonia. **Call ICU**

Is Patient on maximal medical therapy for 1 hour?
- Controlled Oxygen therapy aim 88-92%
- Nebulisers, steroids and Antibiotics
- Drugs discontinued as appropriate

** 1 in 5 patients improve on medical management

Repeat ABG shows resolution? YES
Continue medical management. Admit to 5B/AMU, monitor and document future NIV plan

Repeat ABG post medical management if persisting respiratory acidosis or if patient deteriorating clinically and consistent with AHRF?

Check CXR to rule out pneumothorax and arrange FBC, U&E, LFT and inflammatory markers, check EPR for previous escalation and management plan.

Start NIV (BIPAP)- Start pressure IPAP/EPAP- 12/5, Backup RR– 12, Usual Target pressure- IPAP/EPAP- 20/5

Document:
- Diagnosis of COPD/OSA or OHS (AHRF and somnolent)/Spine or chest wall deformity (acidotic AHRF), Neuromuscular disease (hypercapnia)
- Is this patient a candidate for ICU escalation if NIV fails?
- Has this plan been discussed with patient and/or relatives?
- Is this NIV a ceiling of care?
- Has DNACPR decision made and documented on EPR?

Maximum IPAP should be titrated against tolerability. Patient with NMD or frail patients may require lower IPAP, however OSA/OHS may need high IPAP (25-30)

Rpt ABG at 1 hour

Repeat ABG if no improvement or deterioration
- Refer to seniors/ICU
- Check NIV interfaces and pressures /target Spo2
- Review medical management
- Consider physiotherapy
- Review NIV trouble shooting guide
- Consider palliative meds

Repeat ABG if improvement or resolution of AHRF
- Continue current treatment and repeat ABG 4 and 12 hours
- Arrange transfer on monitored bed 5B (pathway mentioned on reverse page)

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Responsibility of Medical Team

- Establish indications/Contraindications
- Make escalation/Ceiling of care decision.
- Request A&E co-ordinator for NIV bed.
- Document DNACPR and discuss with patient and family.
- Clearly Document future plan of management on EPR (initial ABG, NIV settings) including when, how and whom to contact if patient deteriorates
- Arrange 1hour, 4 hours ABG and clinical review

Disease Specific Indications:

COPD: pH < 7.35 AND PaC02 ≥ 6.5 RR > 23 despite one hour of medical management
Neuromuscular Disease: Respiratory illness with RR >20 if usual VC <1L or pH < 7.35 AND PaC02 ≥ 6.5
Obesity: pH < 7.35 AND PaC02 ≥ 6.5, RR > 23 or daytime PaC02 ≥ 6.0 and drowsy
NIV is not usually indicated in Asthma

Contraindications:

Absolute: Undrained pneumothorax, facial burns, fixed upper airway obstruction, for at least two weeks post oesophagectomy

Relative: pH < 7.15, GCS < 8, confusion/agitation, cognitive impairment, vomiting (consider NG tube)

Indication for ICU referral if appropriate for escalation

- AHRF in Asthma
- AHRF with impending respiratory arrest
- NIV treatment failure: decreased chest wall movement, unable to decrease PaC02
- Inability to maintain target Sp02 on NIV
- Need for IV sedation, closer monitoring +/- possible difficult intubation

Admit on 5B/AMU on a monitored bed with clear plan and parameters needing escalation to medical registrar/ICU medical team/Outreach team

Continuous cardiac and Spo2 monitoring should be done at least for 12-24Hr

Complete NIV Care Bundle and Prescription on EPR

NOTE

- NIV patient at HRI A&E should get admitted on HRI Medical admission unit on a monitored bed/HDU/ICU – Involve outreach and Refer to Respiratory in-reach/respiratory consultant of the week
- Transfer to 5B once fit for transfer and inform respiratory consultant covering ward 5B
- Deteriorating Patients on wards both sites should get NIV started ASAP on ward and follow pathway