THE STUDY VAULT

Clinical Chaos

Hemodynamic Monitoring

SKILL SNAPSHOT

Purpose
- Integrates pressure waveforms and perfusion data to evaluate preload, afterload, contractility, and response to therapy.

When to use
- Shock, vasoactive therapy, major surgery, severe cardiac/respiratory illness, or other critical-care indication.

Supplies needed
- Pressure monitoring system/transducer; flush solution/pressure bag; monitor cables; level; sterile caps; PPE.

PREP + PATIENT SETUP

- Verify invasive lines, ordered parameters, target ranges, and current therapies.
- Assess patient perfusion, mentation, urine output, skin, pulses, lungs, rhythm, and trend.
- Inspect system from patient to monitor for air,

VAULT TIP

- A hemodynamic number is valid only after level, zero, waveform, and patient correlation.

STEP-BY-STEP

1. Hand hygiene; identify patient; explain monitoring when possible.
2. Position patient as ordered and establish a consistent reference position for serial measurements.
3. Level transducer to phlebostatic axis: 4th intercostal space at mid-anteroposterior chest level.
4. Zero transducer to atmospheric pressure: turn stopcock off to patient/open to air, zero monitor, then close to air/open to patient.
5. Verify pressure bag and continuous flush system are functioning per device/policy.
6. Perform dynamic response/square-wave test and assess for optimal, overdamped, or underdamped response.
7. Confirm waveform matches catheter location and has expected morphology before accepting values.
8. Measure pressures at end-expiration when recommended and correlate with patient position/ventilation.
9. Trend MAP, CVP, PA pressures, cardiac output/index, SVR, ScvO2, or other ordered data rather than interpreting one value alone.
10. Correlate numbers with exam, urine output, lactate, labs, echo, ventilator settings, rhythm, and treatment response.
11. After position change, transport, disconnection, or questionable value, relevel/rezero and reassess waveform.
12. Maintain alarms and aseptic system; report abrupt change, waveform migration, bleeding, air, line damage, or clinical deterioration.

SAFETY REMINDERS

- Treat the patient, not an isolated number.
- Waveform quality must be verified before using pressure values.
- Level/zero errors create false readings.
- Never inject medications through an arterial monitoring line.

COMMON MISTAKES

- Wrong transducer level.
- Using a damped waveform value.
- Ignoring body position.
- Documenting numbers without clinical correlation.

DOCUMENTATION

- Position and reference level.
- Zeroing/waveform/dynamic response.
- Values/trends and ventilator context.
- Clinical perfusion assessment.
- Therapy changes and response.