CLINICAL FLASHCARDS

Managing Acute Heart Failure And Cardiogenic Shock

The Life Science Feed

QUESTION

What is the estimated 30-day readmission rate for patients hospitalised with acute decompensated heart failure (ADHF)?

ANSWER

25%

QUESTION

What is the typical 60-day mortality rate for patients following an ADHF admission?

ANSWER

Approximately 10%

QUESTION

According to the CHARM programme, how does each heart failure hospitalisation affect a patient's subsequent mortality risk?

ANSWER

It approximately doubles it.

QUESTION

What are the two primary pathophysiological components of acute decompensated heart failure?

ANSWER

Congestion and low-output component.

QUESTION

What are the common precipitants of an acute heart failure decompensation?

ANSWER

Non-adherence, new atrial fibrillation, infection, and ACS events.

QUESTION

What class of medication is considered the cornerstone of immediate management for ADHF?

ANSWER

IV loop diuretics.

QUESTION

In the DOSE trial, how was 'high-dose' IV diuretic therapy defined?

ANSWER

2.5 times the oral maintenance dose.

QUESTION

What did the DOSE trial conclude regarding continuous infusion versus intermittent bolus for IV diuretics?

ANSWER

Continuous infusion did not outperform intermittent bolus.

QUESTION

What were the clinical benefits of high-dose diuretics compared to low-dose in the DOSE trial?

ANSWER

Greater diuresis and faster symptom relief without worse renal outcomes.

QUESTION

In which specific ADHF patient population are IV nitrates most useful as an acute rescue strategy?

ANSWER

Patients with hypertensive pulmonary oedema and preserved blood pressure.

QUESTION

What does the ADHERE registry suggest is a major predictor of early readmission in ADHF patients?

ANSWER

Discharge with residual congestion.

QUESTION

What biochemical target for NT-proBNP is recommended at discharge to reduce readmission risk?

ANSWER

Ideally below 1000 pg/mL.

QUESTION

Clinical decongestion at discharge is defined by the absence of which positional breathing difficulty?

ANSWER

Orthopnoea

QUESTION

What trial demonstrated that high-intensity GDMT initiation during and after ADHF hospitalisation reduces 180-day mortality?

ANSWER

STRONG-HF

QUESTION

The STRONG-HF protocol recommends close outpatient follow-up within what timeframe after discharge?

ANSWER

The first six weeks.

QUESTION

What is the systolic blood pressure threshold used to define cardiogenic shock?

ANSWER

SBP < 90 mmHg

QUESTION

What are the four clinical signs of end-organ hypoperfusion in cardiogenic shock?

ANSWER

Cool peripheries, oliguria, elevated lactate, and altered mentation.

QUESTION

What is the historically reported mortality rate for cardiogenic shock?

ANSWER

40%-50%

QUESTION

Which vasopressor is preferred over dopamine for cardiogenic shock based on the SOAP II trial?

ANSWER

Norepinephrine

QUESTION

Why was dopamine associated with higher mortality than norepinephrine in the SOAP II trial?

ANSWER

Due to increased risk of arrhythmias in cardiogenic shock.

QUESTION

What are the two primary downsides of using inotropes like dobutamine or milrinone?

ANSWER

Increased myocardial oxygen demand and higher arrhythmia risk.

QUESTION

What did the IABP-SHOCK II trial conclude about the routine use of intraaortic balloon pumps in MI cardiogenic shock?

ANSWER

IABP did not reduce 30-day mortality compared to no IABP.

QUESTION

How does the Impella device provide haemodynamic support?

ANSWER

It directly unloads the left ventricle and increases forward flow.

QUESTION

The 2024 DanGer Shock trial showed a survival benefit at 180 days for which device in MI cardiogenic shock?

ANSWER

Impella CP

QUESTION

What timing factor was critical for the survival benefit observed in the DanGer Shock trial?

ANSWER

Early initiation before full haemodynamic collapse (pre-escalation).

QUESTION

How does early mechanical unloading of the left ventricle theoretically protect the heart during shock?

ANSWER

It reduces myocardial oxygen demand and potentially limits infarct size.

QUESTION

What is the primary function of Venoarterial Extracorporeal Membrane Oxygenation (VA-ECMO)?

ANSWER

To provide full cardiorespiratory support.

QUESTION

What was the main finding of the ECMO-CS trial regarding immediate VA-ECMO use?

ANSWER

It did not show a mortality benefit and was associated with more vascular bleeding.

QUESTION

According to the MOMENTUM 3 trial, what is the two-year survival rate for patients with a HeartMate 3 LVAD?

ANSWER

Over 80%

QUESTION

What remains the 'gold standard' therapy for eligible survivors of advanced heart failure?

ANSWER

Cardiac transplantation.

QUESTION

The ESC guidelines recommend multidisciplinary heart failure clinic follow-up within how many days of hospital discharge?

ANSWER

Within 7-14 days.

QUESTION

What is the function of the CardioMEMS device?

ANSWER

It is an implanted pulmonary artery pressure sensor for remote monitoring.

QUESTION

The CHAMPION trial showed that CardioMEMS reduced heart failure hospitalisations by what percentage in NYHA Class III patients?

ANSWER

37%

QUESTION

What is the primary goal of using AI-based algorithms in the future of heart failure care?

ANSWER

To predict decompensation before it becomes clinically evident.

QUESTION

How is each heart failure hospitalisation described regarding its effect on overall cardiac function?

ANSWER

It represents a step-down in cardiac function.

QUESTION

In terms of clinical decongestion, what is the target for peripheral symptoms?

ANSWER

No significant oedema.

QUESTION

In terms of clinical decongestion, what is the target for oxygen levels?

ANSWER

Normal O_{2} saturation.

QUESTION

Which trial focused on the rapid titration of oral heart failure therapies during and immediately after admission?

ANSWER

STRONG-HF

QUESTION

What is the main limitation of cardiac transplantation as a treatment for advanced heart failure?

ANSWER

Donor scarcity.

QUESTION

How does the CardioMEMS device help clinicians prevent admissions?

ANSWER

By allowing pre-emptive diuretic adjustments based on transmitted pressure data.

QUESTION

What does the term 'low-output component' in ADHF specifically refer to?

ANSWER

Reduced cardiac output and renal hypoperfusion.

QUESTION

The DOSE trial compared intermittent bolus diuretics to which other administration method?

ANSWER

Continuous infusion.

QUESTION

In cardiogenic shock, which metabolic marker is typically elevated due to tissue hypoperfusion?

ANSWER

Lactate

QUESTION

Which microaxial pump is placed percutaneously via the femoral artery to support the left ventricle?

ANSWER

Impella

QUESTION

What is the primary clinical indicator of the 'vulnerable window' in heart failure patients?

ANSWER

The period immediately following a hospital discharge.

QUESTION

Which trial showed that IABP was non-superior to standard care in acute MI cardiogenic shock?

ANSWER

IABP-SHOCK II

QUESTION

What is the target NT-proBNP trend at the time of discharge for an ADHF patient?

ANSWER

Trending down.

QUESTION

The HEARTMATE 3 device was specifically tested in which clinical trial?

ANSWER

MOMENTUM 3

QUESTION

What is the preferred route of insertion for the Impella CP device?

ANSWER

Femoral artery.

QUESTION

In the context of cardiogenic shock, what does the term 'bridge to recovery' mean?

ANSWER

Using mechanical support to allow the heart time to regain function.

QUESTION

What percentage of heart failure patients are over age 65 when admitted for ADHF?

ANSWER

The majority (it is the most common cause of admission in this age group).

QUESTION

Which trial published in 2024 provided evidence for the use of Impella in MI-related shock?

ANSWER

DanGer Shock

QUESTION

The CHAMPION trial evaluated the effectiveness of which monitoring device?

ANSWER

CardioMEMS

QUESTION

What is the common clinical consequence of discharging a patient with residual biochemical congestion (NT-proBNP)?

ANSWER

Substantially higher 60–90 day readmission and mortality.

QUESTION

What is the mechanism of action for furosemide and bumetanide?

ANSWER

IV loop diuretics.

QUESTION

In the SOAP II trial, which patient subgroup specifically benefited from norepinephrine over dopamine?

ANSWER

Patients in cardiogenic shock.

QUESTION

Which mechanical support device provides full cardiorespiratory support, unlike the Impella?

ANSWER

VA-ECMO

QUESTION

What is the main challenge in heart failure care according to James Carter, given current trial evidence?

ANSWER

Implementation of existing evidence into clinical practice.

QUESTION

What does the abbreviation ADHF stand for?

ANSWER

Acute Decompensated Heart Failure

QUESTION

What is the primary clinical sign of orthopnoea?

ANSWER

Shortness of breath when lying flat.

QUESTION

Which registry data highlighted that many ADHF patients are discharged with residual congestion?

ANSWER

ADHERE

QUESTION

What is the term for a patient experiencing a sudden inability of the heart to maintain compensation?

ANSWER

Acute decompensation.

QUESTION

What does the 'low-output component' of ADHF typically cause in the kidneys?

ANSWER

Renal hypoperfusion.

QUESTION

The DOSE trial proved that high-dose diuretics produced greater _____ than low-dose therapy.

ANSWER

Diuresis

QUESTION

What is the effect of cardiogenic shock on the peripheries of the body?

ANSWER

They become cool to the touch.