N22 - Fistulas and Worsening Heart Failure

When: New or worsening breathlessness, right-heart congestion, or reduced dialysis tolerance with an AV fistula or graft.

Do this

• Compare symptoms with baseline and with the dates of access creation or revision: exertional dyspnea, orthopnea, fatigue, edema, abdominal swelling, and reduced walking distance.

• Record BP, pulse, oxygen saturation, pre/post weights, target weight, fluid removal, and hypotension or inability to finish dialysis. Persistent symptoms near target weight still need assessment.

• Bring known HFrEF (reduced left-ventricular ejection fraction), right-ventricular dysfunction, pulmonary hypertension, recent echo findings, and heart-failure admissions to the team [1,2].

• Request nephrology/cardiology/access-team review when the access may contribute. Provide measured access-flow trends if available; pump blood flow on the dialysis machine is not access flow (Qa) [1].

Call / escalate

• Dyspnea at rest, new hypoxemia, chest pain, syncope, confusion, or hypotension with poor perfusion: activate urgent assessment; do not wait for an access-flow study.

• Progressive edema or abdominal swelling, worsening orthopnea, recurrent heart-failure admissions, or declining UF tolerance: notify the responsible clinician promptly.

Don't

• Do not assume every episode is simple fluid excess or respond by independently raising ultrafiltration. Do not compress or occlude the fistula to test a diagnosis.

• Do not diagnose high-output failure from a thrill, BNP, ejection fraction, or flow value alone. Do not change access or heart-failure medicines without orders.

Evidence numbers refer to the sources on the reverse.

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Why

• An AV fistula or graft shunts blood back to the heart, increasing venous return and cardiac workload. High-output failure can occur with preserved or reduced EF; a normal EF does not exclude it [1,2].

• Limited left- or right-heart reserve can make the shunt harder to tolerate. Observational data link access creation with right-ventricular enlargement and dysfunction, but do not prove every patient's heart failure is caused by the access [2,3].

• Evaluation considers volume, anemia, ischemia, arrhythmia, valve disease, and other causes, alongside echo and measured access flow. Selected patients need specialist hemodynamic testing. Management may include flow reduction or an alternative access/modality, with a plan to preserve dialysis delivery [1,2].

Bring this to the review

Symptom onset and access/procedure dates; BP/pulse/oxygen trend; weight and UF tolerance; edema/abdominal swelling; EF and right-heart findings; measured Qa if available; admissions; the assessment and follow-up needed.

Sources - click to open

1. Access-related high-output heart failure: diagnosis and management. PMID: 40456577

2. Vascular access and heart function: individualized planning. PMID: 33143540

3. Long-term cardiovascular changes after access creation. PMID: 28329100

Full reviews and navigation

Examining and Cannulating the AVF and AVG

Estimating dry weight: assessment, tools, probing

Vascular Access Selection in Older Patients Starting Hemodialysis

Companion cards: older adults, access choices, and heart failure

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Adapted from the linked Clinical Mastery reviews. Updated September 27, 2026. Andrew Bland, MD, FACP, FAAP - Urine Nephrology Now.