



Administering HBO to renal dialysis patients

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Key Terms

Hemodynamic- relating to the flow of blood within the organs and tissues of the body.

Hyperoxic- the opposite of hypoxia, refers to a state in which oxygen supply is excessive.

Ventricle- a hollow part or cavity in an organ. Each of the two main chambers of the heart, left and right.

Pulmonary Edema- a condition caused by excess fluid in the lungs. This fluid collects in the numerous air sacs in the lungs, making it difficult to breathe.

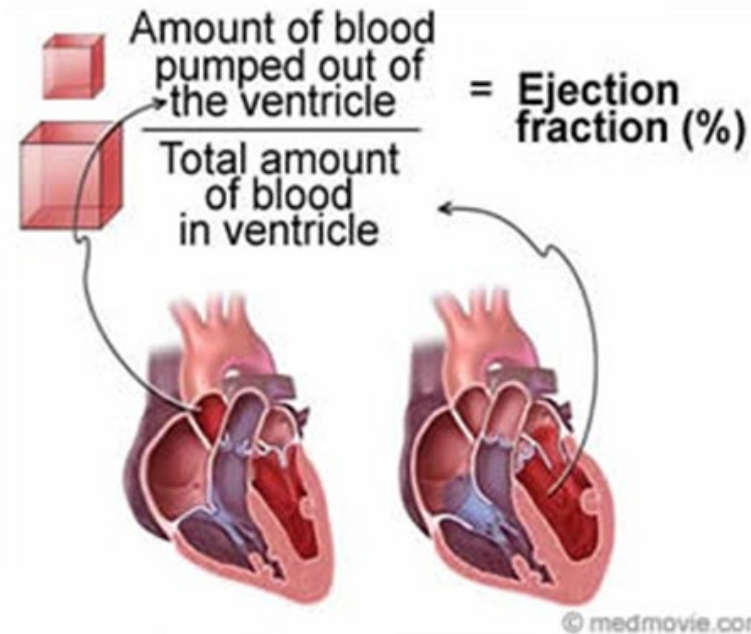
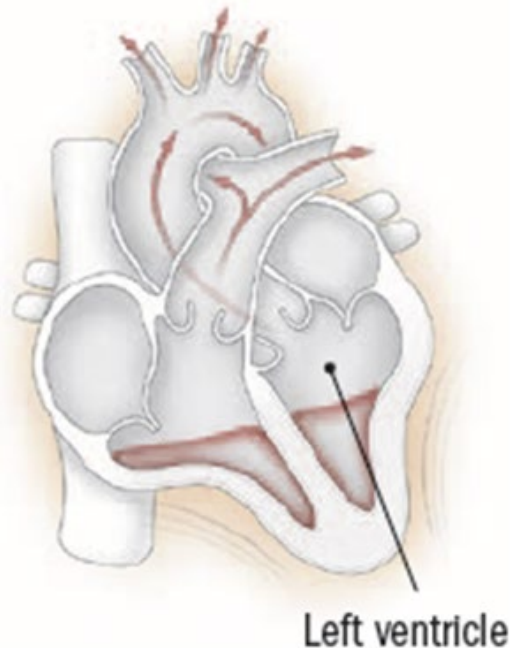
Dialysis- dialysis is the process of removing excess water, solutes, and toxins from the blood in people whose kidneys can no longer perform these functions naturally.

Echocardiogram- a graphic outline of the heart's movement. Provides pictures of the heart's valves and chambers and helps evaluate the pumping action of the heart

Congestive Heart Failure- a weakness of the heart that leads to a buildup of fluid in the lungs and surrounding body tissues.

HBO hemodynamic changes

HBO can produce significant hemodynamic changes. An increase in systemic afterload due to hyperoxic vasoconstriction in well perfused tissues can lead to a decrease in left ventricular function and a decrease in ejection fraction in some patients.



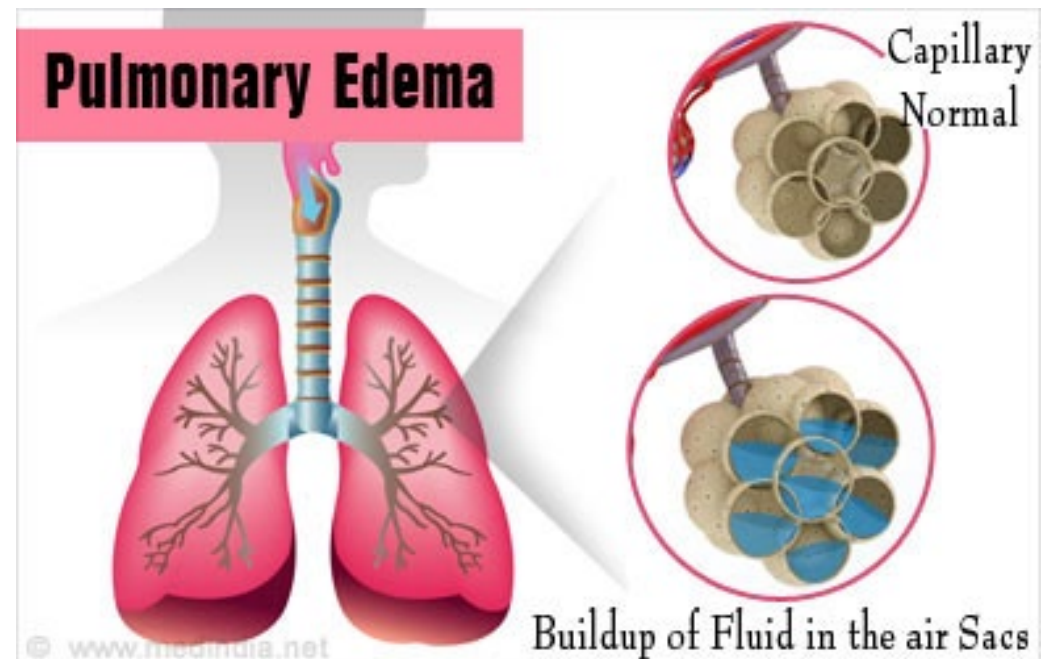
Acute Left Ventricular Dysfunction + Acute Pulmonary Edema

When a decrease in left ventricular function occurs in the setting of pulmonary arterial vasodilation due to improved alveolar oxygenation with increased left arterial and left ventricular filling, acute left ventricular dysfunction and pulmonary edema can result.

Cases have been reported in patients with a history of pulmonary edema or low left ventricular ejection fractions, or in patients with sudden fluid shifts from volume overload.

Pulmonary Edema- medical emergency

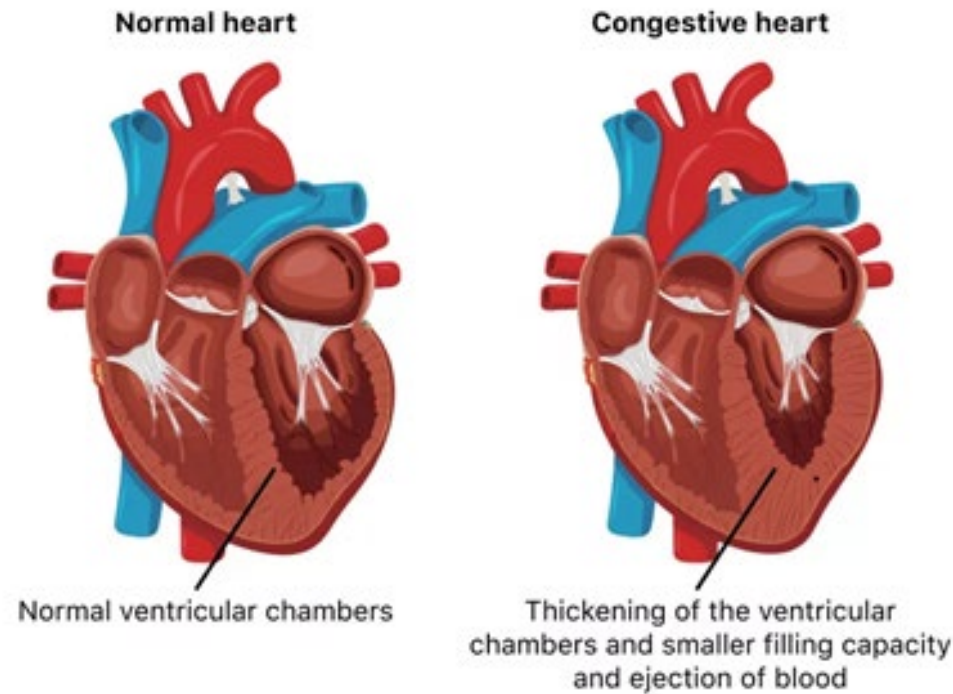
Acute pulmonary edema appears to be more common in monoplace than multiplace treatment settings, perhaps related to the patients being in a more supine position.



Congestive Heart Failure- medical emergency

a weakness of the heart that leads to a buildup of fluid in the lungs and surrounding body tissues.

Normal vs. Congestive Heart



What patients are at risk?

- Peripheral Arterial Disease
- Diabetes Mellitus
- **Renal Dialysis**

These patients are at an increased risk for coronary artery disease, occult left ventricle dysfunction and congestive heart failure. ***Especially in dialysis patients*** who may be prone to rapid changes in fluid volume

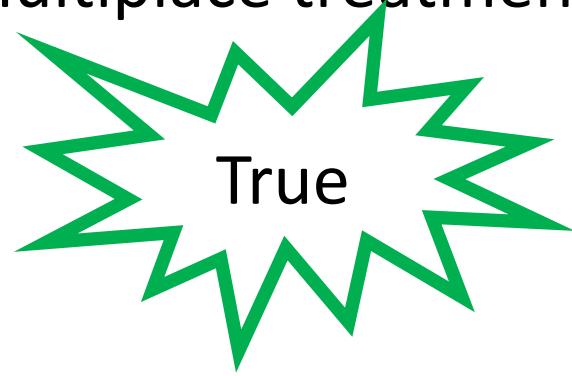
Procedure for treating patients with Dialysis

1. Obtain an **Echocardiogram** in any patient with a history of congestive heart failure, and when abnormal. Refer these patients for evaluation and optimization by a cardiologist.
2. Any patient with an **ejection fraction of less than 30% should be considered very high risk** for HBO.
3. **Weigh** renal failure patients **daily, before HBO** to determine if excessive fluid retention is present.
4. **Monitor** these patients **extremely closely**.
5. **Abort** treatment at the first sign of respiratory distress.



Quiz Time!

Acute pulmonary edema appears to be more common in monoplace than multiplace treatment settings.



False

This may be due to the requirement for patients to be in a more

Supine

position in the monoplace chamber.

You should weigh renal failure patients daily, before HBO to determine if excessive fluid retention is present

True

False



Hyperbaric Oxygen exposure will not produce significant hemodynamic changes

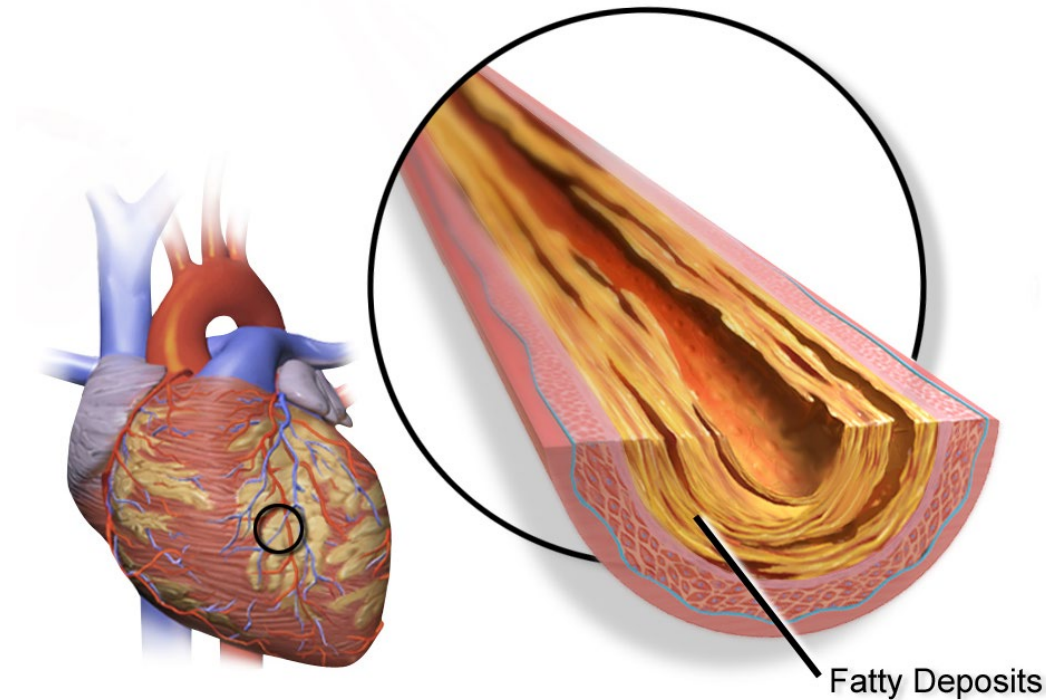
True



False

Patients who have severe peripheral arterial disease or diabetes mellitus are at risk for coronary artery disease

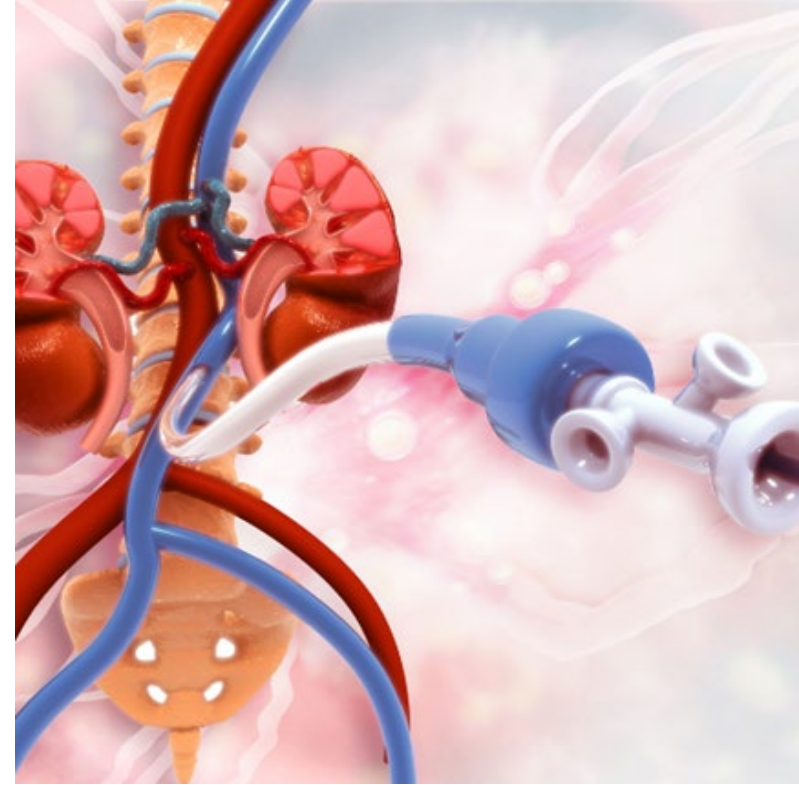
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False



List two special precautions that should be taken with dialysis patients



&

**Ok
thanks
bye.**