

St George Hospital Renal Department INTERNAL ONLY

Air embolism

Objective: Early detection of an air embolus and prevention of life threatening complications.

Air usually enters via the venous line and manifests in different ways depending on the position of the patient.

- A seated, elevated patient: air passes up the jugular vein into the cerebral venous system. The patient may cry out in alarm due to the air rushing through the venous system. Then the patient may lose consciousness, convulse and die.
- A patient lying flat: air forms foam in the right ventricle interfering with its pumping ability.
- Patient lying on right side: air may go to the pulmonary arteries, resulting in acute pulmonary hypertension. Some air may go to the left ventricle with resulting arterial embolisation, cardiac arrhythmias and neurological deficits, patient may experience sudden dyspnoea, agitation, cyanosis, respiratory arrest and loss of consciousness (Auscultation of the heart reveals a churning sound caused by the air foam in the heart)
- Trendelenburg's position: air will pass to the lower extremities resulting in patching cyanosis. If infusion of air is stopped in time and the patient is kept in position with the air remaining trapped in the leg veins there will probably be no serious sequelae.

Management

1. Turn blood pump off and clamp venous cannula as close to the patient as possible.
2. Turn patient on left side with the head lower than the heart. This position traps air in the right ventricle and away from the pulmonary valve.
3. Call for urgent medical help.
4. Administer 100% oxygen

Prevention

- Securing all connections;
- Careful monitoring of infusions;
- Placement of infusions into the venous line where possible;
- Correct machine function - air detector and line clamps.

Reference

Daugirdas, J, Blake, P., & Ing, T. (2007) Handbook of Dialysis 4th edition

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