*Diagnosis of hepatopulmonary syndrome in patients under consideration for liver transplantation*

* We recommend that a bubble echocardiography study with agitated saline be used in favor of nuclear scintigraphy to diagnose intrapulmonary shunting in hypoxic patients with chronic liver disease to evaluate hepatopulmonary disease. **Grade 1C**

*Rationale*: Normal saline is transferred very quickly between two syringes utilizing a stopcock to create bubbles of >10 micrometer. Under normal conditions, these microbubbles do not pass through pulmonary capillaries with a normal diameter of 8-15 micrometers. With intracardiac shunting, microbubbles opacification of the left atrium (LA) occurs within 3 heartbeats after saline administration.177, 178 With microbubble passage through abnormally dilated pulmonary capillaries (transpulmonary shunting- hepatopulmonary syndrome) opacification of the LA occurs 3-6 beats after administration. 179 This test is more sensitive than injection of technetium-99m-labeled albumin microaggregates with subsequent measurement of radioisotope uptake in the brain, requires no ionized radiation or patient transport to the nuclear medicine department. 180

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