Identification of the portal vein: wedge hepatic venography with CO2 or iodinated contrast medium.

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RATIONALE AND OBJECTIVES: The purpose of this study was to evaluate the utility of CO2 versus iodinated contrast medium for wedge hepatic venography in identifying portal vein anatomy during transjugular intrahepatic portosystemic shunt (TIPS) procedures. MATERIALS AND METHODS: Wedge hepatic venograms obtained with CO2 or iodinated contrast medium and direct portograms of 43 patients undergoing TIPS procedures were analyzed retrospectively. Wedge venography was performed in 23 patients with CO2 and in 21 with iodinated contrast medium; direct portography was subsequently performed in 42 of 44 patients with iodinated contrast medium and in one with CO2. All cases were reviewed systematically to compare portal vein anatomy and completeness of anatomic identification between direct portography and wedge venography, and the results with CO2 were compared to those with iodinated contrast material. RESULTS: On the basis of opacification of the main portal trunk, branches, or both, the portal vein appearance (definition of the portal bifurcation) was good to excellent in 21 to 23 patients imaged with CO2 but in only two of 20 patients imaged with iodinated contrast medium. Wedge venograms agreed with direct portograms in 91% (21 of 23) of the CO2 cases and in 10% (two of 20) of the iodinated contrast medium cases. The two patients with poor opacification using CO2 had poor delineation of the main portal trunk, branches, and varices. TIPS could not be created in three patients. In two, abnormal morphology was identified at CO2 venography; in the third, wedge venography was not performed. CONCLUSION: Wedge hepatic venography with CO2 compared with iodinated contrast medium has a substantially higher likelihood of correctly and completely identifying the location and anatomy of the portal vein.

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