

## **RENAL DUPLEX**

### **Patient Prep (recommended):**

1. Patients are recommended to be NPO (except meds) for 6 hours prior to a renal duplex ultrasound examination.
  - a. If a patient has not been NPO (or tube feeding not stopped) for 6 hours, the technologist will scan the patients and document patient preparation.
  - b. Patients who are inadequately prepped may be required to undergo a second limited examination to view the vessels that were unable to be imaged.
2. Patient may take water with medications up to exam time (small volumes only).

### **Survey:**

Perform a real time survey of the kidneys with attention to renal arteries, renal veins and aorta.

If a patient has not had a complete renal ultrasound within 30 days, a complete renal ultrasound must be performed complying with the renal protocol.

Limitations with images should be documented.

### **Image Documentation:**

Each image must be labeled with the patient's full name, medical record number, accession number, initials of the imaging technologist, organ/area identification, scanning plane and patient orientation if different from supine.

### **MAIN RENAL ARTERY**

The entire main renal artery should be evaluated longitudinally.

Images:

1. Color images:
  - a. Proximal aorta origin
  - b. Middle third artery
  - c. Distal third near renal hilum
  - d. Area of stenosis and distal to stenosis
2. Doppler with velocity measurements utilizing angle correct at (<60 degrees when possible) and measure velocity at site of highest systolic velocity:
  - a. Proximal aorta origin
  - b. Middle third artery
  - c. Distal third near renal hilum
  - d. Area of stenosis and distal to stenosis

The renal and aorta should be evaluated for accessory arteries. If an accessory artery is located it should be imaged with the same technique.

### **INTRARENAL ARTERY (Interlobar Arteries)**

Images:

1. Color image of renal arteries.
2. Doppler with Resistive Index (RI) measurements without angle correction with wide Doppler gate (1cm).
  - a. Superior pole kidney
  - b. Middle pole kidney
  - c. Inferior pole kidney

Add the three Resistive Indexes (RI) together and divide by three to obtain the average.

3. Doppler with Acceleration Index (AI) measurements without angle correction with wide Doppler gate (1cm). Increase sweep speed to maximize the velocity waveform size.
  - a. Superior pole kidney
  - b. Middle pole kidney
  - c. Inferior pole kidney

### **MAIN RENAL VEIN**

Images:

1. Longitudinal axis with color
2. Longitudinal axis with Doppler

### **KIDNEY**

Images:

1. Longitudinal axis mid with and without measurement
2. Transverse axis mid with and without measurement

If a patient has not had a complete renal ultrasound within 30 days, a complete renal ultrasound must be performed complying with the renal protocol.

### **AORTA**

Images:

1. Longitudinal axis at level just proximal to renal arteries
  - a. Color image
  - b. Doppler with velocity measurement with angle correction.

