Purpose:

Review our experience with hemorrhage in CT guided renal biopsy in Multiple Myeloma and non Myeloma patients.

Methods:

This is a retrospective review of all CT-guided renal biopsies for non mass lesions from 2001 through 2003. We recorded the following:

- Clinical outcomes
- Locations of needles
- Needle size, and number of passes
- Visible hemorrhage, 0 to 4 scale, as judged by 3 blinded radiologists who then conferred and reached consensus

Results:

Fifty four consecutive cases, 30 MM and 24 non-MM, were acquired from 2001 - 2003. All had correction of INR to <1.6 and platelets to >75,000.

Needles included 49 18 g ASAP, two 15 g ASAP, and three 20 g Turner needles. All had adequate samples, but the Turners were marginal and are no longer used.

- Overall mean hematoma score:
  - MM 1.57 vs non-MM 1.0, p = 0.08, a strong tendency for more bleeding in MM
  - Central 1.62 vs Tangential 1.12, p = 0.14, tends to more bleeding centrally
  - Middle 1.2 vs lower pole 1.54, p = 0.48, NS

- MM vs. non-MM scores
  - Central scores:
    - MM 1.75 vs non-MM 1.44, p = 0.61, NS
  - Tangential scores:
    - MM 1.44 vs non-MM 0.73, p = 0.05, significantly different
  - Moderate or severe bleeding, grade 3 or 4; MM 23% vs non MM 8%, NS

- Complications
  - Major
  - Minor
  - Additional imaging, 6
  - Outpatient hematuria, 1
  - Renal transplant, 1
  - Transfusions, 3 (2 MM and 1 non MM)
  - Arterial embolization and death, 1 (MM)
  - Additional hospitalization for hematuria, 1

Discussion:

- All patients getting renal biopsies, either with or without MM, are likely to have bleeding problems. This is the primary risk of this procedure and makes correction of the coagulation factors most important prior to biopsy.
- Precision of needle placement does make a difference.
- All categories tend toward more bleeding with MM than in non-MM.
- Central biopsies (where larger vessels are encountered) show an increased bleeding tendency.
- Safest MM group is the Tangential biopsy group.
- Safest group of all is non-MM Tangential biopsy group which is significantly safer than MM.
- Alternative techniques including transjugular venous and blunt tipped needle techniques have been reported and might be worth developing for very high risk patients.

Conclusion:

- Renal biopsies in multiple myeloma tend to bleed more often and to a greater extent than non-MM cases.
- Tangential biopsy in non-MM patients causes statistically less bleeding than in MM patients.
- CT guided tangential needle placement is precise, tends to produce less bleeding, and should be the standard approach for renal biopsy, especially in high risk patients.

References:


Percutaneous Renal Biopsies and Hemorrhage in Multiple Myeloma

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Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6