**Thirty-day rates of Emergency Room Visits & Hospitalization after Common Outpatient Image-guided Interventions**

**The Problem**
- Common cross-sectional interventions performed in the radiology department include Ultrasound and CT-guided biopsies, drainages and fiducial marker placement.
- These procedures are typically done on an out-patient basis and patients are discharged after approximately 3 hours of observation.
- Admission of patients and Emergency Department visits within 30 days of discharge is an important healthcare quality metric and not readily known to the procedural radiologist.
- These hospital admissions or ED visit may be non-immediate complications of the procedure.

**Aim/Goal**
The goal of this study was to establish the standard for post-procedural hospital admission and ED visits for cross sectional interventions performed under moderate sedation. Further analysis was also performed to identify possible preventable causes of post-procedure emergency department visits and hospitalizations.

**The Team**
- Olga R Brook, MD; Department of Radiology
- Ammar Sarwar, MD; Department of Radiology
- Muneeb Ahmed, MD; Department of Radiology
- Robert Sheiman, MD; Department of Radiology
- Bettina Siewert, MD; Department of Radiology
- Sahil Mehta, MD; Resident, Department of Radiology
- Quang Nguyen, MD; Resident, Department of Radiology

**The Interventions**
- Retrospective review from November 2012 to August 2014 of 1657 outpatient radiology procedures performed with moderate sedation.
- Reviewed parameters included procedure date, type of intervention(s), organ system, procedure imaging modality, and any pertinent clinical follow-up and urgent medical care within 30 days of the procedure.
- Clinical outcomes were characterized on whether they were related to the radiology procedure based upon consensus of a radiologist and clinical team providing care for the patient during the ED visit or admission.

**The Results/Progress to Date**

<table>
<thead>
<tr>
<th>Total Image-Guided Procedures</th>
<th>1657</th>
<th>Percent of Visit</th>
<th>Percent of Total Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission following Procedure</td>
<td>Procedure Related</td>
<td>34</td>
<td>20.2%</td>
</tr>
<tr>
<td>Procedure Related</td>
<td>Possible Relation</td>
<td>6</td>
<td>3.6%</td>
</tr>
<tr>
<td>Emergency Department Visit following Procedure</td>
<td>Procedure Related</td>
<td>8</td>
<td>26.7%</td>
</tr>
</tbody>
</table>

**Lessons Learned**
- Outpatient image guided procedures are safe with low rate of procedure-related admissions and ED visits.
- Hemorrhage (0.7% of total procedures, 26.1% of admissions), pneumothorax (0.5%, 21.4%), and infection (0.2%, 9.5%) were the most common procedural complications that required admission with pneumothoraxes common for lung biopsies and hemorrhage common for liver biopsies.

**Next Steps/What Should Happen Next**
Identify clinical risk factors that may predispose patients to common procedure complications such as pneumothorax, hemorrhage and infection in order to prevent those in the future.

For more information, contact: Quang Nguyen, MD, Radiology Resident Qnguyen2@bidmc.harvard.edu