Pain and Anxiety During Less Invasive Interventional Radiology Procedures

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ABSTRACT: **The purpose of this study was to describe patient-reported pre-, intra-, and postprocedure pain and anxiety levels for adults undergoing less invasive interventional radiology procedures. Most of the 53 outpatients were males, English speakers (91%), aged between 40 and 70 years, and having a chest port or arm port insertion procedure. Pain levels greater than 4 (0-10 scale) were experienced by a minority of participants (before, $n = 1$; during, $n = 7$; and after, $n = 3$). Many patients undergoing arm port and chest port insertions (22-68%) experienced some level of preprocedural anxiety. This is the first study to document the presence of pain and anxiety levels of outpatients receiving dialysis arteriovenous graft fistulogram or declotting procedures, chest port or arm port insertions, or tunneled dialysis catheter placements. Radiology nurses need to be aware of the pain and anxiety experiences of these patients and should be assessing and managing these in collaboration with their medical colleagues. (J Radiol Nurs 2015;34:88-93.)**

KEYWORDS: **Radiology nursing; Interventional radiology; Pain; Anxiety; Outpatients; Procedural pain; Radiology.**

INTRODUCTION

Nurses working in interventional radiology (IR) units know that patient problems with procedures parallel those seen in other patient care areas: pain, anticipatory anxiety, lack of knowledge, fear, and so on. Although procedural pain has been well studied in pediatric (Cramton & Gruchala, 2012; Uman et al., 2013) and critical care patients (Puntillo et al., 2014), it is understudied in patients undergoing IR procedures. Anxiety has been understudied as well, even in pediatrics (Alexander, 2012).

LOCAL PROBLEM WITH PAIN AND ANXIETY

At a faith-based community hospital, routine postprocedure follow-up phone calls led IR staff nurses to voice concern to their manager about higher-than-expected patient-reported case-related pain. Nurses specifically believed that patients had unmet pain and anxiety needs during and after undergoing what are commonly referred to as less invasive IR procedures (e.g., dialysis arteriovenous [AV] graft fistulogram or declotting, chest port or arm port insertions, and tunneled dialysis catheter placement).

At the time of this study, patients undergoing these less invasive procedures were given local anesthesia with 1% lidocaine subcutaneous infiltration at the procedural site(s) and no other analgesic agents. They usually received neither preprocedural anxiolytics nor general anesthesia or conscious sedation. The latter has been the standard of care at our hospital for more invasive IR procedures (e.g., diagnostic or interventional angiographic

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This research was conducted at St. Joseph Hospital, 1100 West Stewart Ave., Orange, CA. During the data collection phase of the study, Ms. Gonzales (mary.gonzales@stjoe.org) was the Manager of the Interventional Radiology unit; currently, she is a Clinical Nurse, Infection Prevention & Control. Dana N. Rutledge serves as Consultant/ Nursing Research Facilitator, St. Joseph Hospital and is a Professor, School of Nursing, California State University, Fullerton.

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cases); sedation/analgesia is given to "patients undergoing diagnostic imaging, image-guided interventions, and radiation oncology procedures to relieve anxiety, discomfort, or pain" (American College of Radiology, Society of Interventional Radiology, 2010).

Nurses also anecdotally reported the occurrence of intraprocedure observable pain behaviors (e.g., patient grimacing, increased heart rate, moaning) and verbal reports of pain for patients undergoing IR procedures in this less invasive category. Their observations, coupled with the postprocedure phone call results, raised the question of whether procedural pain management was adequate for this patient population. At the same time, staff members voiced concern to nursing management and physicians related to procedural anxiety for patients undergoing these same procedures.

LITERATURE REVIEW

Few research studies specific to IR procedure-related pain and anxiety perception or management are found in the literature. One study conducted in the cardiac catheterization laboratory setting found that most patients undergoing several procedural types and conscious sedation experienced comfort, whereas a minority (26%) experienced discomfort (Beddoes, Botti, & Duke, 2008). Music, education, and relaxation/massage interventions have been evaluated to decrease pain and anxiety in radiology-assisted procedures (Chair, Chau, Sit, & Wong, 2012; Chang, Peng, Wang, & Lai, 2011; Keller et al., 2012; McDaniel et al., 2009; Nikolajsen, Lyndgaard, Schriver, & Moller, 2009; Shabanloei, Golchin, Esfahani, Dolatkhah, & Rasoulian, 2010; Weeks & Nilsson, 2011; Zakerimoghadam, Shaban, Mehran, & Hashemi, 2010; Zengin et al., 2013); findings are mixed in terms of intervention effectiveness, although most music interventions were effective in reducing pain.

STUDY PURPOSE

The purpose of this study was to describe patient-reported pre-, intra-, and postprocedure pain and anxiety levels, which when aggregated, could drive future efforts to manage procedural pain and anxiety strategies for patients undergoing these select cases.

METHODS

In this descriptive study, there was no known risk to patients for participation. No patient identifiers, such as name, medical record, date of birth, were recorded. The study was approved by the hospital institutional review board.

Participants

Included as participants were referred outpatients, aged 18 or older, who received one of the following selected less invasive IR procedures during July 2011 to March 2013: dialysis AV graft fistulogram or declotting, chest port or arm port insertions, and tunneled dialysis catheter placement. Initially, patients who had received an analgesic or antianxiety medication within 8 hr of admission to the preprocedure area were excluded. In early 2012, a practice change within the IR department led to a change in the exclusion criteria for participants; physicians began ordering antianxiety medications as a standard of care for these select cases (alprazolam 0.5 mg orally in the preprocedure area, usually within 1 hr of a procedure). Therefore, from January 2012 to March 2013, study eligibility was amended to allow patients who had received an anxiolytic agent within 8 hr of admission to the preprocedure area.

Measures

Pain and Anxiety. A one-page survey tool was used to describe pre- and postprocedure pain and anxiety. Pain was measured using an 11-item numeric rating scale (0 = no pain and 10 = worst possible pain). Anxiety was measured using five of the six items on the Spielberger State-Trait Anxiety Inventory (yes/no responses to the following: "I feel calm." "I am tense." "I feel upset." "I am relaxed." and "I am worried."); prior studies support the validity and internal consistency of the six-item scale (Marteau & Bekker, 1992).

Demographics and Information About the Procedure. A procedural documentation tool was used to record pre- and intraprocedural information: procedure type, patient gender, patient age group (18-29, 30-39, 40-49, 50-59, 60-69, 70-79, and 80-89 years), preprocedural anxiolytics given, patient pain level (numeric rating scale every 15 min intraprocedurally and at postprocedure), medications given for pain/anxiety intraprocedurally including subcutaneous lidocaine.

Procedures

Approximately 5 to 10 min before the procedure, patients completed the written pain and anxiety tool in the presence of the procedural room staff nurse. If requested, the staff nurse or interpreter translated the script and read the questions to the patient and recorded the ratings. Family members were not allowed to fill it out or answer for patients. The procedural documentation tool was completed by the procedural room nurse. Within 10 min after completion of the procedure, patients again completed the pain and anxiety tool. During the procedure, IR physicians administered 1% lidocaine subcutaneous infiltration (dosage varied by practitioner) at the procedure site at least one time; some physicians administered subsequent doses, which were recorded.