MATHEWS

Review Article

Mathews Journal of Case Reports

Anxiety Levels Before Interventional Radiological Procedures

Ayse Merve Sahin[1], Mustafa Gok[2], Serpil Demirag[3*]

[1]MD, Specialist, Department of Family Medicine, Adnan Menderes University School of Medicine, Turkiye

[2]MD, Associate Professor, Department of Radiology, Adnan Menderes University School of Medicine, Turkiye

[3]MD, PhD, Professor, Department of Family Medicine, Adnan Menderes University School of Medicine, Turkiye

ABSTRACT

Interventional radiology is a subspecialty of radiology that utilizes minimally invasive techniques for diagnostic and therapeutic purposes. Although these procedures are generally low-risk for patients, the uncertainty experienced, fear of pain, and concerns regarding the procedure may increase anxiety levels. This review examines the anxiety levels of patients undergoing interventional radiological procedures, evaluates the contributing factors, and provides recommendations for managing anxiety in this context.

Keywords: Interventional Radiology, Anxiety, Patient Management

INTRODUCTION

Interventional Radiology

Interventional radiology has become an increasingly preferred method in the medical field with technological advancements. The foundations of interventional radiological procedures were laid in the 1960s, and they continue to develop rapidly today [1]. Interventional radiological procedures, which hold a significant place in many branches of medicine, offer minimally invasive treatment methods for diseases that would otherwise require surgical intervention, thereby reducing the necessity for major operations. These procedures minimize the need for general anesthesia, contributing to faster patient recovery. Additionally, they provide advantages such as reducing tumor size and decreasing blood flow before major tumor surgeries, ultimately lowering the risk of surgical complications. Conducting these procedures under imaging guidance increases their accuracy and enhances treatment success. The primary imaging modalities used in this field include X-ray, ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI). Procedures such as angiography, biopsy, and embolization offer patients less invasive options with faster recovery times, although they may also pose certain psychological challenges [2].

Interventional radiological procedures are categorized into two main groups: vascular and non-vascular interventions. Vascular interventional procedures involve treatments related to blood vessels, such as angiography, stent placement, and embolization. Non-vascular interventional procedures focus on organs or tissues, including biopsies, drainage procedures, and tumor ablations. Both vascular and non-

Vol No: 10, Issue: 02

Received Date: February 27, 2025

Published Date: March 19, 2025

***Corresponding Author**

Dr. Serpil Demirag, MD, PhD, Professor

Department of Family Medicine, Adnan Men-deres University School of Medicine, Turkiye,

Email: sdaydin@adu.edu.tr

Citation: Sahin AM, et al. (2025). Anxiety Levels Before Interventional Radiological Procedures. Mathews J Case Rep. 10(2):200.

vascular interventional radiological procedures are becoming increasingly widespread worldwide, covering a broad patient population. These methods offer various advantages compared to traditional surgery, including smaller incisions, reduced anesthesia requirements, alternative treatment options, and shorter hospital stays [3].

Anxiety in Patients

Anxiety is a distressing emotional experience that arises when an individual perceives a threat. This emotional state manifests as feelings of restlessness, tension, fear, and uncertainty. It affects the sympathetic, parasympathetic, and endocrine systems, leading to various physiological responses in the body. Consequently, symptoms such as nausea, vomiting, and dizziness may be observed [4].

Anxiety is a biophysiological response of the body to stress. Prolonged stress and anxiety can negatively impact various physiological systems. When anxiety persists at high levels for an extended period, stress hormones remain elevated in the bloodstream. One of these hormones, cortisol, promotes protein breakdown, adversely affects metabolism, and may cause blood sugar imbalances. As a result, delays in wound healing and suppression of the immune system may occur. Additionally, hormones such as adrenaline and noradrenaline increase heart rate and blood pressure, placing strain on the cardiovascular system. In the long term, these effects increased the risk of infection and contribute to physiological disturbances such as electrolyte imbalances. Therefore, managing anxiety before interventional radiological procedures is crucial for both patient comfort and procedural success [5].

Anxiety Before Interventional Radiological Procedures

Anxiety is a condition frequently observed before or during interventional radiological procedures, which can affect patient comfort and the success of the procedure. It has been observed that patients experience varying levels of stress before and during the procedure. Studies have shown a direct relationship between patients' anxiety levels and their pain perception. Therefore, investigating the factors that determine anxiety levels and managing anxiety is of great importance. Additionally, it has been demonstrated that anxiety-reducing approaches applied before the procedure can also contribute to pain management [3].

In addition to the hospital environment, the unique structure of radiology departments, long waiting intervals, difficulties in patient-physician communication, and the unfamiliarity with advanced medical equipment can increase anxiety levels in patients. In particular, a lack of sufficient information about the procedures can trigger the anxiety. Therefore, the entire team, from the referring physicians to the healthcare professionals performing the intervention, should be aware of these concerns and adopt an empathetic attitude toward patients [6,7].

Affecting Factors

Factors influencing anxiety levels can be categorized into individual, procedural, and environmental factors:

Individual factors: Factors due to personal features (patient's age, gender, and educational level) play a significant role in determining anxiety levels. A review of the literature reveals varying results related to age. It has been shown that younger individuals tend to have higher anxiety levels before interventional procedures, while older individuals generally experience lower levels of anxiety; however, this can vary depending on health status, cognitive awareness, and past medical experiences [8,9]. In general, female patients report higher anxiety levels compared to male patients, regardless of age. Previous medical experiences and health-related knowledge can also affect anxiety levels. Patients who have undergone similar procedures in the past may experience lower anxiety, whereas those encountering interventional radiology for the first time may have higher anxiety levels. However, patients who have had negative or painful experiences in the past may report increased anxiety.

Procedural factors: Features of the procedure (like type, duration, and complexity) can directly affect anxiety levels. In particular, patients undergoing procedures without sedation and those with longer procedure times are more likely to experience higher stress. The amount and quality of information provided to the patient before the procedure is another critical factor influencing anxiety levels. Inadequate or incorrect information can lead the patient to perceive the process as uncertain, increasing their anxiety.

Environmental factors: The environment of the place where the procedure is being held (hospital setting, the physical conditions of the procedure area, and the noise level) can impact the patient's psychological state. The approach of healthcare professionals is a significant factor that can either increase or decrease the patient's sense of security. Empathetic communication plays a crucial role in reducing the patient's anxiety [10-12].

Managing Anxiety

Various strategies can be applied to manage anxiety in patients before or during interventional radiological procedures. Providing patients with detailed, understandable, and realistic information about the procedure can alleviate anxiety by reducing uncertainties. In cases where necessary, mild sedative or anxiolytic medications may be appropriate for certain patients. Behavioral and psychological techniques, such as deep breathing exercises, relaxation techniques, and

music therapy, can also be used. Additionally, the role of the physician and healthcare staff is crucial. An empathetic approach, effective communication with the patient, and a reassuring attitude are critical in managing anxiety [13,14].

CONCLUSION

In conclusion, there are several factors that influence patients' anxiety levels during interventional radiological procedures. Identifying these factors and managing them with appropriate strategies can enhance patient comfort and the success of the procedure. Psychological support for patients and the conscious approach of healthcare professionals play a crucial role in anxiety management. Further comprehensive research in this area will contribute to improving the quality of patient care.

ACKNOWLEDGMENTS

None.

CONFLICTS OF INTEREST

The author does not identify any conflicts of interest.

REFERENCES

1. Alnajjar SF, Alshamrani HM, Banasser AM, Alshehri HZ, Wazzan MA, Abduljabbar AH. (2019). Awareness of Interventional Radiology Among Medical Students at a Saudi Medical School: Clerkship versus Pre-clerkship Years. Oman Med J. 34(5):420-426.
2. Schupp CJ, Berbaum K, Berbaum M, Lang EV. (2005). Pain and anxiety during interventional radiologic procedures: effect of patients' state anxiety at baseline and modulation by nonpharmacologic analgesia adjuncts. J Vasc Interv Radiol. 16(12):1585-1592.
3. Kulkarni S, Johnson PC, Kettles S, Kasthuri RS. (2012). Music during interventional radiological procedures, effect on sedation, pain and anxiety: a randomised controlled trial. Br J Radiol. 85(1016):1059-1063.
4. Pritchard MJ. (2011). Using the hospital anxiety and depression scale in surgical patients. Nurs Stand. 25(34):35-41.
5. Hughes S. (2002). The effects of giving patients pre-operative information. Nurs Stand. 16(28):33-37.
6. Öztaş B, İyigün E. (2019). Determination of pain and anxiety (concern) levels of patients undergoing procedures with local anesthesia in the interventional radiology department. Ege Tıp Dergisi. 58(4):344-350.
7. Blomberg F, Brulin C, Andertun R, Rydh A. (2010). Patients' Perception of Quality of Care in a Radiology Department: A Medical-Physical Approach. Journal of Radiology Nursing. 29(1):10-17.
8. Kim WS, Byeon GJ, Song BJ, Lee HJ. (2010). Availability of preoperative anxiety scale as a predictive factor for hemodynamic changes during induction of anesthesia. Korean J Anesthesiol. 58(4):328-333.
9. Aykent R, Kocamanoğlu İS, Üstün E, Tür A, Şahinoğlu H. (2007). Preoperative anxiety causes and evaluation: Comparison of APAIS and STAI scores. Turkiye Klinikleri Journal of Anesthesiology Reanimation. 5(1):7-13.
10. Yilmaz Y, Durmuş K, İnal FY, Çiftçi T, Daşkaya H, Toptaş M, et al. (2014). The effect of preoperative and postoperative anxiety on postoperative pain and analgesic requirements in septoplasty operations. Dicle Tıp Dergisi. 41(2):288-293.
11. Gonzales M, Rutledge DN. (2015). Pain and anxiety during less invasive interventional radiology procedures. Journal of Radiology Nursing. 34(2):88-93.
12. Laufenberg-Feldmann R, Kappis B. (2013). Assessing preoperative anxiety using a questionnaire and clinical rating: a prospective observational study. Eur J Anaesthesiol. 30(12):758-763.
13. Fındık Ü, Topçu S. (2015). The effect of the method of surgical admission on preoperative anxiety levels. Hacettepe University Journal of Nursing. 19(2):22-33.
14. Levy N, Landmann L, Stermer E, Erdreich M, Beny A, Meisels R. (1989). Does a detailed explanation prior to gastroscopy reduce the patient's anxiety? Endoscopy. 21(06):263-265.