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AICD: A Little Shocking to Your Emotional Health

Lindsay M. Olson

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AICD: A LITTLE SHOCKING TO YOUR EMOTIONAL HEALTH

By

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Bachelor of Science in Nursing, Minot State University, 2005

An Independent Study

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Science

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PERMISSION PAGE

Title AICD: A Little Shocking to Your Emotional Health
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Abstract

The treatment of choice for ventricular arrhythmias (VA) and the prevention of sudden cardiac death (SCD) is an Internal Cardioverter Defibrillator (ICD) (Burke, Hallas, Clark-Carter, Whitel, & Connelly, 2003). ICDs are surgically implanted and automatically discharge a 25-35 joule electrical shock directly to the heart if a VA is sensed to convert the heart back to a normal rhythm (Keren, Aaron, & Veltri, 1991). ICDs save people's lives, yet they can also cause an increased amount of emotional stress, mainly anxiety.

A literature review was conducted to evaluate the emotional impacts of the ICD implantation, shock therapy, and the patient's emotional well-being. There are seven main foci of this review. Evidence reveals that many people suffer emotional distress after ICD implantation and ICD shock therapy.

Nurses have a unique relationship with patients, allowing nurses to provide education, interventions, and holistic care to help alleviate the anxiety which can make patients more prone to arrhythmias. Formal nursing education is needed to provide nurses with the knowledge that they are a key asset in helping to support this population. At the culmination of this project, a presentation was given to cardiovascular nurses at a Midwestern tertiary hospital regarding the emotional effects of the ICD. Included in the presentation was the relevant problem of the emotional affects of ICDs, nursing and medicinal interventions, and a thorough understanding of what these patients endure emotionally.

Introduction

The automatic implantable cardioverter defibrillator (AICD) or also known as the implantable cardioverter defibrillator (ICD) was approved for use in 1985 to treat potentially lethal ventricular arrhythmias by delivering an electrical impulse to the heart to convert the lethal rhythm back to a normal sinus rhythm (NSR) (Parkes, Bryant, & Milne, 2000). The effectiveness of the ICD in preventing sudden cardiac death (SCD) is based on its proven capacity to convert 98% of ventricular tachycardia to NSR (Kowey, Marinchak, & Rials, 1993). Since the introduction of the ICD, there has been a striking reduction in mortality in patients with ventricular arrhythmias (lethal rhythms) (Metoyer, 2005). Unfortunately, research has found that ICD patients have various types of emotional stress and some psychological disorders caused by the ICD itself along with its therapy, which are decreasing their quality of life.

Patient mortality was found to decrease with the implantation of an ICD, therefore many healthcare professionals may feel the problem is solved. “Although the ICD offers a confirmed mortality benefit, it may incite psychological adjustment issues within recipients” (Sears, Vazquez, Matchett, & Pitzalis, 2008, p. 239). This paper will provide evidence based research studies that have proven a number of patients suffer from emotional stress after ICD placement, which may increase after shock therapy. Furthermore, initial research has suggested that approximately 55% of ICD patients regularly engage in avoidance of activities, places, and people due to fear (Lemon, Edelman, & Kirkness, 2004). Research suggests that if patients are receiving shock therapy, particularly five or more shocks, it was associated with decreased quality of life

(Irvine, Dorian, Barker, Linden, Schlegl, Schultheiss, & Behrens, 2002). Anxiety has also been associated with poor outcomes and may actually increase the risk of sudden cardiac death by changing the autonomic regulation of the heart (Kubzansky, et. al, 1988). The clinical question of this study is, “Should nursing interventions be initiated for patients with recurrent ventricular arrhythmias and ICDs?”

Purpose of the Project

The purpose of this project is to review current literature to evaluate the emotional distress encountered from appropriate ICD shock therapy as well as the nursing interventions to alleviate the distress. It is possible that high anxiety and emotional stress may contribute to patients being predisposed to more ventricular arrhythmias and ICD discharges. The incidence of sudden cardiac death increases in populations who experience disasters such as earthquakes. The physiological link between psychological stress and sudden death is unknown, but one group of researchers’ hypothesis is that the mechanism may be the direct effects of sympathetic arousal on arrhythmias (Lampert, Joska, Burg, Batsford, McPherson, & Jain, 2000). Thus, if we are able to help control the emotional aspect of the situation, we may lessen the amount of ventricular arrhythmia and in the end, lessen the number of discharges a patient receives. Many researchers have found that by applying nursing interventions to patients with ICDs, nurses have the ability to lessen the patient’s level of anxiety, depression, and anger (Sears, Matchett, and Conti, 2009; Sears, Vazquez, Matchett, & Pitzalis, 2008; Lemon and Kirkness, 2007; Dougherty, Benoliel, and Bellin, 2000; Dunbar, Langberg, Reilly, Viswanathan, Mccarty, Culler, O’Brien, and Weintraub, 2009; Vlay, Olson, Fricchione, and Friedman, 1989).

A literature review was conducted to research the ICD, its direct effects on patients and the effects after shock therapy has been administered. The literature review also included the study of nursing interventions to help this unique type of emotional distress that patients and their loved ones encounter. It is important for nurses to grasp the reality of emotional stress and learn to assess patients for emotional distress. The literature review verified that nurses can help to provide interventions for this patient population, in return improving their quality of life.

Enhanced ICD patient care is possible by providing nurses with the awareness of the emotional stress after encountering appropriate shock therapy from the patient's ICD. Evidence to support nursing intervention was presented to roughly 50 cardiovascular staff nurses at a Midwestern Tertiary Hospital's Cardiovascular Specialty Day on September 21, 2011. Nurses were educated on the problem, as well as the following nursing interventions: providing education to patients, identification of patients who could be suffering from a psychological disturbance caused from their ICD, and stress reducing interventions for those patients. Nurses may help to "normalize" fears by informing the patients and families about the statistics that demonstrate emotional disturbances occur with ICDs, especially after shock therapy. Encouraging emotional release, empowering patients, and referring them to their physician or psychiatrist are just a few ways in which nurses can intervene.

Significance

The effectiveness of the ICD in preventing Sudden Cardiac Death (SCD) is based on its proven capacity to convert 98% of ventricular tachycardia (VT) to NSR (Metoyer, 2005). As mentioned earlier, the ICD has clearly caused a striking reduction in mortality

in patients with documented sustained VT, as well as those with inducible ventricular arrhythmias. On the contrary, the key factor is that 30-50% of patients have reported some degree of negative effect, such as fear, anxiety, and depression (Luyster, Hughes, waechter, & Josephson, 2006).

Emotional stress is important in the assessment of the patient with the ICD who is receiving appropriate shock therapy. The term “cardiophobia” was described in 1993 by Eifert, Forsyth, and Schauss identifying heart-focused anxiety symptoms, such as angina and heart palpitations, experienced by patients during times of stress and physiological arousal, despite even having a medical device. Therefore, if it is known that many cardiac patients have already succumbed to heart focus anxiety symptoms, placing a device, as well as possibly receiving shocks from their device can have a dramatic effect on anxiety and emotional stress. According to Sears et al. (2008) anxiety is the most predominant form of psychological morbidity for ICD patients. In fact, a study published in 1999 found that 13-38% of recipients experience clinically significant levels of anxiety, regardless if shock therapy has been initiated (Sears, et al, 2008). Furthermore, Irvine, et al, 2002 found that patients experiencing an occurrence of shock therapy, and particularly five or more shocks, reported decreased quality of life. Patients communicated feelings of no control, and therefore they yearned for some type of control, which was manifested by attempting to predict their shocks. Monitoring for signs of impending shock began to increase. This lead to hyper-vigilance regarding body sensations that were often provoked by anxiety. (Birnie & Keren, 2009). It has been determined that when a patient begins to feel anxious or depressed, they begin to feel less secure and less satisfied with the ICD

therapy and report a decrease in quality of life (Pedersen, Theuns, Erdman, & Jordaens, 2008).

In addition, it has been found that device-related anxiety promotes increased avoidance behavior, fear of increasing the autonomic arousal, sleep disturbances, sexual dysfunction, increased irritability, and difficulty concentrating (Metoyer, 2005). Sears, Matchett and Conti (2009) recommended that the positive effects of nursing interventions on the health of patients, ways to promote education to nursing staff, and the interventions that actually work must be closely examined. Furthermore, they discovered that nurses may be influential in the promotion of interventions to this sub-group of people by normalizing fears. Sears, Todaro, Lewis, Sotile, and Conti (1999) revealed during their reviews that approximately 13-38% of ICD patients experience diagnosable levels of anxiety including nearly 1/3 of these patients reporting a fear of shock therapy. This fear is not unrealistic because in reality, ICD shock can be extremely uncomfortable, and those patients that receive more than one shock consecutively may be at risk for an even higher incidence of psychosocial complications, (Metoyer, 2005). Engaging the ICD patient in discussion that normalizes their emotions enables follow-up staff to help the patient talk about fear and other reactions. Nurses can initiate the conversation by using the statement; "Feeling stressed about the ICD is a normal reaction" (Metoyer, 2005).

The benefit of recognizing that the patients' emotional and mental health needs assessing is imperative. The significance of this project is to educate nurses that emotional distress, especially anxiety, can be a problem for patients who have an ICD and have received appropriate shock therapy from it. Nurses educated on this topic will be able to know to assess for anxiety in this patient population, and to take action by

providing nursing interventions. Nurses will also gain evidence based nursing practice information, which will allow them to make changes and collaborate with other team members within their hospital units. Nurses can provide the ICD patient and family time to verbalize fear or concerns related to the therapy, as well as allow time for discussion of the meaning of his/her illness, which can be an important aspect of a psychological plan for these patients (Metoyer, 2005).

According to the articles within this literature review, it can be concluded that nursing interventions can directly increase people's quality of life, if they are suffering anxiety from their ICD shocks. It is possible that interventions may also decrease the number of ventricular arrhythmias. One single intervention will not change the anxiety of patients, but it may require a list of interventions and time given in order for the interventions to make a difference (Edelman, Lemon, & Kirkness, 2007). Negative emotions are associated with increases in arrhythmias and psychiatric illness can interfere with recovery from medical illness (Sola & Bostvick, 2005). It is imperative that we develop and implement protocols and tools in place to be used for these patients to improve their quality of life.

Theoretical Framework

The theoretical framework used for this independent project is Cognitive Learning, more specifically Gestalt cognitive–field learning theory. The Gestalt Learning theory focuses on organization of a person's perceptual field to make sense of multiple parts (McEwen & Wills, 2007). Gestalt is German for “configuration or pattern” (Bastable, 2006, p. 41). The Gestalt theory suggests that a “field” is a dynamic, interrelated system in which any part can affect all other parts, and that the whole is more

than the sum of the parts (Hergenhahn & Olson, 2004). This is important as we look at the “whole” in emotional stress caused from ICD shock therapy. The nurse needs to focus on the individual as a “whole,” yet be able to break down the contributory factors of the emotional stress as they relate to the rhythm issues.

First, the cognitive-field psychologists consider learning to be closely related to perception (McEwen & Wills, 2007). The deliverable education to the nursing staff will begin by discussing the perception of patients with ICDs. The perception of the audience will be an important base factor regarding the direction of the educational session. Next, perception and experiences of reality are uniquely individual, based on a person’s total life experience. The audience will include nurses with a specialty in cardiovascular care, but they may range from a Medical Cardiac Intensive Care Unit (ICU) to a Surgical Cardiac ICU to Transplant Cardiac ICU to the many “step-down cardiovascular units”. It will be important to gain insight from the various experiences of the nurses. According to McEwen and Wills (2007), learning is a process of discovering and understanding the relationship among people (our patients), things (rhythms and ICD shock therapy), and ideas (nursing interventions). Learning in this theory is viewed as an active, goal-oriented process that is accomplished when information is processed and the “aha” moment is experienced.

The Gestalt theory and practice had its roots in psychoanalysis, drawing from the work of Freud and Jung (Clegg, 2010). The essence of successful problem-solving behavior is being able to see the overall structure of the problem. Gestalt therapy is authentic care about holism and multidimensionality. Although it applies most directly to

perception and problem-solving, it applies to all aspects of human learning (Gestalt Theory, 2011).

The components and nature of learning within the Gestalt Learning theory includes that the learner should be encouraged to discover the underlying nature of a topic or problem (Stemberger, 2011). Instruction is based upon the laws of organization including proximity, closure, similarity, and simplicity. The gaps, incongruities or disturbances are also an important stimulus for learning (Stemberger, 2011). With this theory emphasis is on what people know, focus is on their awareness, and they are made aware of what they can learn (Wetheimer & King, 2007). This learning is flexible and can be applied to various other situations. Problems are arranged and rearranged in many ways so that the solution emerges based on the person's understanding (Wetheimer & King, 2007).

Unfortunately, this theory also has limitations. Organization of perceptual processes may be accepted as fact rather than studied scientifically. Basic concepts and terms are not defined with sufficient rigor. Insight learning may be difficult to replicate in research. According to Kohler (1959) there are also criticisms to this theory, which include the holistic approach to psychology, outside factors, and the participants may have no motivation to learn.

Review of the Literature

Definitions

Anxiety

Anxiety is a feeling of apprehension and fear characterized by physical symptoms such as palpitations, sweating, and feelings of stress. Anxiety disorders are serious medical illnesses that affect approximately 19 million American adults (Fauci, Braunwald, Icher, Wilson, Martin, & Kasper, 2008).

Automatic Internal Cardioverter Defibrillator (AICD or ICD)

The ICD is the treatment of choice for ventricular arrhythmias (VA) and the prevention of sudden cardiac death (SCD) (Burke, et al., 2003). An ICD is implanted surgically and senses the presence of life-threatening arrhythmias then automatically discharges approximately a 25-35 joule, the voltage of electrical shock directly to the heart (Keren, et al., 1991). This monitoring of your heart rhythm is similar to the monitoring done by machines in the coronary care unit. If the ICD senses that the rhythm is ventricular tachycardia or ventricular fibrillation, it will deliver an "internal" shock to the heart to correct the abnormal rhythm (Rochester Medical Center, 2010).

Ventricular Arrhythmia (VA)

Ventricular arrhythmias are abnormal rapid heart rhythms (arrhythmias) that originate in the lower chambers of the heart (the ventricles). Ventricular arrhythmias include ventricular tachycardia and ventricular fibrillation. Both are life threatening arrhythmias (MedicineNet.com, 1998).

Ventricular Fibrillation (VF)

In ventricular fibrillation, the ventricles (lower chambers of the heart) beat rapidly in a chaotic, purposeless fashion. The heart cannot pump blood effectively to the body. If untreated, ventricular fibrillation can be fatal within minutes, or even seconds (MedicineNet.com, 2001).

Ventricular Tachycardia (VT)

An abnormally rapid heart rhythm that originates from a ventricle, one of the lower chambers of the heart. Although the beat is regular, ventricular tachycardia is life-threatening because it may not perfuse the heart or eventually it can lead to a dreaded condition, ventricular fibrillation (MedicineNet.com, 2001).

History of the ICD

The Automatic Implantable Cardioverter Defibrillator is a small metal electronic device that is implanted in patients at high risk for sudden cardiac death caused by ventricular arrhythmias. The ICD was invented by Dr. Michel Mirowski in the 1970s at Sinai Hospital of Baltimore which is an affiliate of Johns Hopkins. It attaches to the heart through several electrode wires (John Hopkins, 2011).

The device has the ability to monitor for abnormal arrhythmias and either pace the abnormal rhythm into a normal rhythm, or shock the heart at various joule settings of 25-35 to reset the rhythm to a normal rhythm. Their efficacy in terminating ventricular fibrillation and preventing SCD has been well established (Edelman, Lemon, and Kidman, 2003).

Researchers at the University of California Los Angeles's medical school found as many as 12,179 lives per year may be saved via an ICD (Parmar, 2011).

Unfortunately, some of these people may encounter the adverse, unpredictable, and largely uncontrollable emotional distress caused from their ICD, possibly even hindering their quality of life. The patient's quality of life may become jeopardized due to the majority of shocks occurring during normal daily activities, often with little or no warning. As one can imagine, these conditions can bear high anxiety for recipients causing some people to develop learned helplessness in fear that any emotion or activity would cause them to have ventricular arrhythmias, and in turn their ICD will discharge. One patient describes returning home as living on a razor's edge knowing that VT could still recur at any time. Plans and strategies were made by the day, not the week. The patient feared being on his own at any time; after feeling a run of ectopy, he would just freeze. "Painful, frightening, confusing, shocking, with a sense of not having any control" is how one person described the feeling of ventricular arrhythmias and their ICD (Reid, 1993).

Prior to the 1970s, most patients would not survive ventricular arrhythmias (lethal rhythm). It wasn't until 1970 that Automatic Internal Defibrillators were invented. Being diagnosed with a disease that can cause sudden cardiac death is no longer a death sentence. If an individual is predisposed to SCD, then it is actually good to have a diagnosis so appropriate proactive therapy can be initiated.

Process

Research was retrieved by searching the Cochrane Library, CINAHL, and UpToDate, using the keywords *AICD, Automatic Internal Cardioverter, Defibrillator, Ventricular Arrhythmias, Recurrent Ventricular Arrhythmias*, combined with: *anxiety, depression, anger, post-traumatic stress disorder, and nursing intervention, animals receiving shock therapy compared to people* anywhere in the listing. Though it was intended to limit inclusion criteria to nursing interventions for patients with recurrent ventricular arrhythmias and AICDs, there were few studies matching these criteria. For this reason, any research including anxiety and AICDs or ventricular arrhythmias was included.

According to the articles within this literature review, one can conclude that nursing interventions can directly increase people's quality of life if they are suffering anxiety from ICD shocks. It is possible that interventions may also decrease the number of ventricular arrhythmias. It was learned that one single intervention will not change the anxiety of patients, but it may require a list of interventions and be given time in order for the interventions to make a difference (Edelman, et al., 2007). Negative emotions are associated with increases in arrhythmias and psychiatric illness can interfere with recovery from medical illness (Sola & Bostvick, 2005). It is imperative that we develop protocols and tools in place to be used for these patients to improve their quality of life.

An educational session for cardiovascular nurses who work in a Midwestern teaching hospital was presented on September 21, 2011. These nurses range from Medical Cardiac ICU to Surgical Cardiac ICU to Cardiac Transplant ICU to "Step down units" from all three ICUs. The educational sessions were approximately one hour. The

power point presentation was viewed by many CV nurses to include their perspectives on nursing interventions. Nurses within the educational session were informed of evidence based research which includes information regarding anxiety, ventricular arrhythmias, and ICD discharges. Nurses learned about ways in which they can provide stress and relaxation techniques for the patients. The nurses were educated regarding empowerment strategies for their patients.

Dr. Barry Boilson and Dr. Peter Brady, both consultants in Electrophysiology, were consulted to help gain information regarding this project. Many nurses and consultants throughout the CCU were able to help give case studies and information. The CV Nurse Specialist - MSN, Karen Warfield, also reviewed and gave insight from her specialty regarding the deliverable and paper. The staff development committee of the CCU offered insight from their careers as CCU staff nurses. Jennifer Miller, CCRN, BSN and Kayla Shafer also offered feedback reviewing this project prior to delivery. Dr. Elizabeth Tyree also contributed by assisting in the review and organization of the independent project and deliverable.

Review of Literature

A comprehensive review of the literature was completed to determine the effects of the ICD, shock therapy, and patients' emotional wellbeing. There are seven main focus areas of this review: Emotional and psychological effects of ICD, Emotional and psychological effects of appropriate ICD therapy, Phantom shocks, Patients that suffer from ventricular arrhythmias, Animals tested after receiving shock therapy, Nursing Interventions, Formal types of therapy, and Gaps within research and the need for further research.

Emotional and Psychological Effects of ICD

Many studies have shown that patients suffer from emotional distress varying from anxiety to depression after implantation of the ICD. Edelman and Lemon, (2007) studied anxiety and depression in forty-nine patients (21 completed all the assessments) prior to the implantation, as well as followed up with the same patients at two, four, and six months after implantation. They used the questionnaire Depression Anxiety and Stress Scale (DASS), Anxiety Sensitivity Index (ASI), and the Hostility Scale to assess whether the patients suffer from anxiety or depression. They found that the most common psychological problem identified was anxiety ranging between 26% and 34%, which was higher than the general population. Results also revealed clinically significant depression, also higher than the general population, ranging between 8 and 20%. Edelman and Lemon felt that among the patients at risk for sudden cardiac death their fear of cardiac related symptoms may be justified. They hypothesized that once the ICD is implanted, then the likelihood of death is substantially reduced and therefore, the ICD may facilitate the psychological adjustment among patients (Edelman and Lemon, 2007).

Hamner, Hunt, Gee, Garrell, and Monroe in 1999, revealed case studies of patients who all met criteria for Post Traumatic Stress Disorder (PTSD) based on the Diagnostic and Statistical Manual for Mental Disorders, fourth edition, (DSM-IV). During one of the case studies the patient began drinking alcohol at night to calm down and to be able to sleep due to his severe anxiety and fear of defibrillator discharge. His intrusive thoughts of the ICD, avoidance of situations and activities, and increased arousal symptoms were consistent with a diagnosis. Fortunately, after getting help from his provider, he was able to improve due to medication administration and was able to

qualify for a cardiac transplantation. The second case became preoccupied with thoughts of the ICD when he had any physical symptoms and avoided activities that could increase his heart rate and/or remind him of the ICD (walking, sexual activity, yard work). He acknowledged irritability, insomnia, and heart palpitations, which were associated with thoughts of the ICD. He was also recommended medication and supportive psychotherapy (Hamner, et al., 1999).

Emotional and psychological effects of appropriate ICD therapy

Patients may suffer from emotional and psychological effects after receiving appropriate shock therapy from their ICD. In these cases, the patients' lives are clearly saved by the device, yet patients are left feeling anxious, depressed, and even helpless. Sears, Todaro, Lewis, Sotile, and Conti (1999) found that specific fear and symptoms of anxiety are the most common psychological side effects experienced by ICD recipients. Results found approximately 13-38% of recipients experiencing clinically significant levels of anxiety.

The OPTIC Study (Optimal Pharmacological Therapy in Cardioverter Defibrillator Patients) revealed that shocks occurred as frequently as 38.5% of their study group when beta blockers alone were given, but statistics were as low as 10.3 % of this population when beta-blockers and amiodarone were administered combined (Connolly, Dorian, Roberts, Gent, Bailin, Fain, Thorpe, & Champagne, et al., 2006). This may prove that appropriate shock therapy may be decreased by providing patients with adequate, individualized medication treatment, but shock therapy may continue to be needed despite medication adjustments. Individuals knowing that 10.3 % of the patients

in this study received shocks could be enough to cause them anxiety wondering if they may be in this percentage.

Patients may develop “shock anxiety” after receiving appropriate shock therapy from their ICD. “Shock anxiety” can be defined as the fear or anticipation of ICD shock that often results in increased heart-focused anxiety symptoms as well as the development and maintenance of avoidance behaviors to minimize their perceived risk of “shock” (Sears, et al, 2008). Many other articles agree that appropriate shock therapy has been shown to increase the incidence of anxiety (Sears, Todaro, Lewis, Sotile, & Conti, 1999; and Gallagher, McKinley, Mangan, 1997).

Kuhl, Dixit, Walker, Conti, and Sears (2006) found that shock anxiety could be easily assessed via the Florida Shock Anxiety Survey. The higher scores on this questionnaire revealed that patient anxieties were about the inability to cope with the impact of shock versus the confidence with the device working appropriately.

Burg, Lampert, Joska, Batsford, and Jain (2004) studied two hundred forty patients who had received ICDs for standard indications from 1996-1999. They assessed whether concordant psychological traits distinguish patients who experience emotion-triggered ICD shock. The Spielberger Trait Anxiety and Anger Inventories, the Anger Expression Scale, and the Cook-Medely Hostility Scales were used approximately two months after ICD implantations. Patients were also given a structured diary to describe what was happening 0 to 15 minutes prior to shock. The conclusion of the study was that stable psychological factors were associated with the risk for ICD-shock triggered by strong emotions (Burg, et al., 2004).

A randomized clinical trial published in 2010 by Donahue, Lampert, Dornelas, Clemow, and Burg presented the design of a multicenter randomized trial testing the effects of stress reduction treatment (SRT) on the prevalence of shock-treated ventricular arrhythmias among patients with an ICD. Fifty percent of the patients who experienced conscious ICD discharges stated that they felt more anxious as a direct result of their experiences with the ICD (Keren et al, 1991).

Phantom Shocks

Prudente (2003) discussed a case presentation of a patient who had an ICD implanted after a coronary artery bypass graft surgery for severe coronary disease in 1998. In April of 1999, the patient had received five shocks for ventricular tachycardia and one shock for ventricular fibrillation. Two months later he went to the emergency department (ED) again because of another shock, yet when it was interrogated it was revealed that the patient never received another shock. Again, the following week the patient returned to the ED due to two more ICD firings, to find that the interrogation had no recorded events. These firings without actual recordings on the interrogation are known as phantom shocks. Prudente enforced that nurses and other healthcare professionals should be cognizant of the phenomenon and its potential effects on the patients. She states that it is “imperative that nurses support the patient, review the device’s history, and avoid the impulse to minimize the patient’s perceptions” (Prudent, 2003, p. 146). Recognizing that the phantom shock is a real experience for the patient will help to promote continuing communication and fosters a trusting relationship.

Prudente, Riegle, Bourguignon, Haines, and DiMarco (2006) conducted a study including 75 subjects as a convenience sample and divided them into three groups: ICD

patients with phantom shocks (n=19), ICD patients who had actual shocks (n=28), and ICD patients who had no shocks (N=28). Measures were performed by using three psychological rating scales: Spielberger, State-Trait Inventory for adults (STAI), the Center for Epidemiologic Studies Depression Scale (CES-D), and the posttraumatic stress Checklist (PCL-C). They hypothesized that phantom shocks may be a manifestation of anxiety, depression, or post-traumatic stress disorder (PTSD). Prudente, et al. concluded that patients with phantom shocks are more likely to be clinically depressed and have higher levels of anxiety than other ICD patients, regardless of history of actual shocks (Prudente, et. al., 2006).

Patients who develop phantom shocks have higher levels of anxiety and depression than the general ICD population suggesting that there may be an association between these psychopathologies and the development of phantom shocks (Prudente, 2006). Psychiatric syndromes, including anxiety and depression, have been described in patients with ICDs, with important implications for clinical management (Vlay, et al., 1989).

Patients That Suffer from Ventricular Arrhythmias

Patients' anxiety may increase after a shock due to the painful stimuli and feelings of helplessness, as well as being scared and traumatized from the event. If patients become too anxious and angry, they could potentially create a catecholamine release which could trigger more lethal rhythms thereby causing them to receive yet another shock creating a vicious cycle of malignant arrhythmias, such as a Ventricular Tachyarrhythmia Storm (VT Storm).

Vlay, Olson, Fricchione, and Friedman assessed the psychological profile of patients with malignant ventricular tachyarrhythmias. The evaluation indicated a high degree of anxiety and anger (Vlay et al., 1989). The research study performed by Lampert, et al. in 2002 was a much larger study using 277 patients who had received ICDs for standard indication (clinical or inducible ventricular arrhythmias), were followed at the Yale New Haven Hospital ICD, and participated in the study between July 1996 and March 1999. The exclusion criteria were significant psychiatric illness and inability to read or be interviewed in English. Seventeen declined to participate, and 20 later withdrew. The case-crossover method was used to analyze the data. Patients with ICDs were given diaries to record levels of defined mood states and physical activity, using a 5-point intensity scale, during two periods preceding spontaneously occurring ICD shocks (0 to 15 min to 2 hours) and during control periods one week later. They revealed that anger can trigger ventricular arrhythmias in patients with ICDs, as well as can physical exertion (Lampert et al., 2002).

Awan, Hassan, Bangash, Shah, and Noor in 2009 conducted a study on electrical storms (many episodes of ventricular arrhythmias occurring in a small amount of time, usually requiring appropriate ICD shock therapy). They concluded that electrical storms are predictors of poor prognosis. This was a three year study including 25 patients with ICDs who on average, received one shock per two years. Interestingly, 12 out of these 25 patients had more than two shocks within 24 hours. Findings included that most of these patients were having ischemia, electrolyte imbalances or renal failure predisposing them to the electrical storm. The study also included that "Patients with such hypoperfused myocardial substrate are unable to combat with stress, and even minimal amount of stress

such as exercise can provoke ischemia-induced ventricular arrhythmias resulting in frequent device based therapy” (Awan, Hassan, Bangash, Shah, and Noor, 2009, p. 157). This is yet another study that can reveal that patients who are encountering emotional distress may predispose themselves to lethal arrhythmias requiring ICD therapy.

Animals Tested After Receiving Shock Therapy.

As with other types of diseases, researchers study animals and their effects of shock therapy. The animal model of learned helplessness is based on the observation that animals exposed to repeated, uncontrollable, or unpredictable adverse stimuli (e.g. electric foot shock) from which they cannot escape eventually seem to “give up”. Animals who have encountered this type of trial of shock therapy often appear listless, “anxious”, or irritable; have decreased interaction with other animals; lose weight, and have difficulty learning new behaviors. These researchers also found that the syndromes the animals encountered responded to antidepressants (Geyer & Markou, 1995; Van der Kilk, Greenberg, & Boyd, 1984).

Nursing Interventions

Nurses clearly have an important role in caring for this group of patients. Sears, et al, (2008) recommend the importance of assessing and creating interventions for this population. Nurses can provide information and supportive care prior to the implantation, during and after the implantation, as well as during critical episodes where the patient is receiving multiple shocks through a VT storm, or after shock therapy. Nurses can play an intricate role in providing interventions to their patients to decrease anxiety and depression.

Lemon and Kirkness (2007) conducted a qualitative study of a brief educational intervention administered two weeks after ICD implantation on subsequent levels of anxiety, depression, stress and hostility. Another qualitative study investigated whether emotional or physical factors can trigger ventricular arrhythmias in patients with ICDs. They conducted a controlled, diary-based study of the events and emotions preceding VT or VF that caused shock using a case-crossover design. In conclusion, they found that approximately 55% of ICD patients regularly engage in avoidance of activities, places, and people due to fear (Edelman, Lemon, & Kirkness, 2007).

Keren, et al., (1991) used questionnaires in a small study through the mail asking patients to complete the Spielberger State-Trait Anxiety Inventory and the Beck Depression Inventory. The qualitative study included 18 patients who entered Sinai Hospital of Baltimore between July 1, 1987 and June 30, 1989 for the prevention of life-threatening ventricular arrhythmias, all of whom had presented with cardiac arrest or syncope. The sample included all male patients with a mean age of 62 years, documented coronary artery disease, and a mean left ventricular ejection fraction 38%. Patients with an ICD were also asked to complete a questionnaire directed specifically to their experiences with the ICD. The study was designed to assess the presence of anxiety and depression in patients with an ICD who experienced conscious discharges, patients with the ICD who have not experienced any discharges, and patients with similar life-threatening ventricular arrhythmias treated with conventional antiarrhythmic medications without a concomitant ICD. They also included the assessment of the patient in a prospective fashion for potential identifying which patients may respond adversely to device therapy. This study revealed no significant differences in anxiety and depression

in the three groups studied; nor did it find any significant differences in responses to the questionnaire directed specifically at the patients' experiences with the ICD. There was no significant difference in the responses to the questionnaire in the group of patients with ICD discharges compared to the group without ICD discharges. The study concluded that this could be explained by a difference in subjective understanding of anxiety experiences as most of the patients questioned, did not feel that the ICD had affected their mood. On the contrary, investigators did reveal that 50% of the patients who experienced conscious ICD discharges stated that they felt more anxious as a direct result of their experiences with the ICD. These researchers recommend that adverse psychological responses to the ICD should be considered in the risk/benefit assessment in prescribing ICD therapy (Keren et al., 1991).

Dougherty, Benoliel, and Bellin (2000) conducted a study to explore individual and family experiences after sudden cardiac arrest and ICD implantation during the first year of recovery. They included 15 first time sudden cardiac arrest survivors as well as one family member. Dougherty et al. (2000) believed that it was important for patients to have close contact with providers and be given time to discuss their fears or concerns. This study contacted patients via a structured telephone intervention, which was delivered by nurses to ICD patients during the first eight weeks after implantation. They found that patients who received this form of social contact experienced a significant reduction in ICD-related physical symptoms and anxiety over three months as compared with a non-intervention control group. They also identified areas of concern, which could be used for future nursing intervention programs: emotional challenges, physical changes, activities of daily living, partner relationships, and dealing with health care providers. The study's

goals were to identify areas of concern as well as helpful strategies which can be used to enhance recovery following sudden cardiac arrest. This study gives nurses an intimate detail of what patient's thoughts and feelings were with direct quotes from the patients and families. This review is limited in the fact that all of the participants and family members had undergone the effects of a SCA rather, then shock therapy. However, the ideas and concerns may help nurses understand what some patients may encounter, knowing the patient could have had a SCA, if they wouldn't have had the ICD implanted. Nurses could potentially use this information to help conduct nursing interventions for families dealing with anxiety and depression after ICD shock therapy, as the patients who are receiving shock therapy could have had a cardiac arrest if they did not have an ICD in place.

Dunbar, Langberg, Reilly, Viswanathan, Mccarty, Culler, O'Brien, and Weintraub (2009) studied the effects of a psycho-educational intervention on anxiety, depressive symptoms, functional status, and health resource use during the first year after ICD implantation. Two hundred forty-six patients were randomized into three groups: usual care (UC), group counseling (GC), or telephone counseling (TC). Patients were asked to use the well established State-Trait Anxiety Inventory (STAI) to test anxiety, depressive symptoms by using the Beck Depression Inventory and the patients' function status using the Duke Activity Status Inventory (DASI) which were measured at various intervals: baseline, and 1, 3, 6, and 12 months. Results revealed that all groups experienced decreased anxiety and depressive symptoms over the 12 months. The group intervention was lower than the UC group at 3 months. The UC group had greater calls to providers at 1 and 6 months. They also had more sick/disability days at 12 months than

the intervention groups. Investigators concluded that a psycho-educational intervention reduced anxiety and depressive symptoms early after ICD implant, lowered probability of depressive symptoms at 1 year, and decreased disability days/ calls to providers (Dunbar, et al., 2009).

More research reveals that patients need to be able to have time to verbalize their fears and thoughts in order to improve their emotional distress. Providing the patient time to verbalize fear or concerns related to the device, as well as allowing discussion of the meaning of his/her illness is an important aspect of a psychological plan for these patients (Pedersen, et al., 2008). Dickerson, Posluszny, and Kennedy in 2000 found that support groups have demonstrated some value in the ICD population because they allow patients to hear and tell stories, seek meaningful information, form therapeutic relationships and camaraderie, and relate to others on a unique, personal level.

Nurses are essential in helping to provide informal and formal nursing interventions to help improve patient's emotional distress. "The reduction in defibrillator discharges after the first six months in addition to a reduced state of anxiety is a relationship that merits further investigation" (Vlay et al, 1989, p. 366). Vlay et al. (1989) was a group of researchers who designed a qualitative study in which eight patients who underwent implantation of ICD for refractory arrhythmias were evaluated. Six were men and two were women with a mean age of 53 years. Half of these patients were known to have ischemic cardiomyopathy and half did not. All of the patients had undergone cardiac catheterization and an EP (Electrophysiologic) study after out-of-hospital cardiac arrest. All were on antiarrhythmic drug therapy and had previously failed a mean of 3.1 antiarrhythmic drug trials. All of the patients experienced a mean of five

clinical arrhythmias and defibrillator firings following implantation. All who had returned to an active lifestyle and resumed their normal daily activities were examined with the Symptom Checklist-90, the State Trait Personality Inventory, and a specifically designed questionnaire about the ICD. Lampert, et. al, in 2002 suggested further investigations of therapies aimed at blocking a response to these stressors. They felt that by blocking the response to stressors, in turn they may decrease ventricular arrhythmias and shocks in these patients (Lampert et al., 2002).

According to Dougherty, Pyper, and Frasz (2004), there are large numbers of individuals who will receive the ICD in the upcoming decade and therefore, intervention trials that support adjustment after ICD implantations are needed. Thus, they had done a follow up study to Dougherty's, et al. (2000) study. During the 2004 study they created an intervention program based on the social cognitive theory and the data covering the seven areas of concern they found from the study in 2000. The conclusion was that hospital-based education programs begin the process of recovery, but they must be supplemented further with interventions to help return the patient to baseline physical and psychological functioning (Dougherty, et al., 2004).

Formal types of therapy

Cognitive Behavior Therapy provides a holistic view of providing the patient with tools to cope in patients who suffer from psychological disorders and emotional distress. Sears, et al, (2008) recommends the importance of assessing and creating interventions for this population. The article discusses the forms and manifestations of anxiety within the ICD patient population, as well as psychosocial interventions found to be effective in this population. One of the main focuses within the paper includes cognitive behavioral

therapy (CBT). This type of therapy addresses the link between thoughts, feelings, and behaviors regarding ICDs and illness. See Figure 1 for a chart regarding the development and maintenance of ICD anxiety in regards to cognition and conditioning. This group of researchers stated they found key facets of psychosocial interventions that seem to resonate most with a reduction in ICD-specific anxiety, including patient education, social support, relaxation and stress management training, and CBT.

Lastly, Donnahue et al. (2010) included a large sample which included new ICD recipients and previous recipients who had received an appropriate therapeutic shock in the last six months (n=304). Subjects were randomized to either a SRT or usual cardiac care group. Participants completed a psychosocial questionnaire, underwent laboratory mental stress testing, wore a 24-hour Holter monitor, and kept a diary at entrance of the study and again approximately four months later. Follow-ups were completed at 6, 12, and 24 month post randomization to assess occurrence of ICD shock for ventricular arrhythmias (primary outcome), anti-tachycardia pacing events, medication changes, hospitalizations, deaths and quality of life. Although, the trial is still in progress, Donnahue et al. (2010) believes the results may demonstrate a safe, noninvasive, self-managed treatment that can reduce vulnerability to arrhythmia-provoked ICD shock. These researchers hypothesize that, if they are correct, then the finding may form the basis of a new approach to the treatment of the arrhythmia's vulnerability in this patient population. This could lead to SRT becoming part of the standard of care for patients receiving ICDs, thereby reducing the amount of antiarrhythmic medication prescribed and improving the overall quality of life for this growing patient population (Donnahue et al., 2010).

Gaps within the research and need for further research

Keren et al. (1991) reported that ICD activation had minimal effect on anxiety and depression. They found that there were no significant differences in the responses to the questionnaire in the group of patients with ICD discharges and the group without ICD discharges. Despite these statements, the study did reveal that 50% of the patients who experienced conscious ICD discharges stated that they felt more anxious as a direct result of their experiences with the ICD. The study explained that the differences in findings could be explained by the simple fact that subjective understanding of anxiety aided them in answering the questions. This study clearly warrants further research with the clarification of the definitions of anxiety and depression and the behaviors they may manifest.

In the Lampert, et al., (2002) study, anxiety preceded 19% of shocks. This was significantly associated with shock in the unadjusted analysis, but it was not associated after the adjustment for multiple events. They are unsure if this is because anxiety as a trigger of arrhythmia is a more individual-specific phenomenon or whether anxiety would prove to be a significant trigger in a larger study population. Further evaluation is required (Lampert et al., 2002).

Edelman, et al., (2007) suggested that a single educational session delivered to recent ICD recipients is not sufficient to improve patients' psychological adjustment. Investigators recommended further study is needed, stating that it is possible that a more intensive intervention run over several sessions in group or individual format might have yielded a measurable benefit (Edelman et al., 2007).

Prudente's study was limited in the fact that there was not a specific question about the occurrence of SCD prior to implant, which may alter patients' levels of anxiety, depression, or the occurrence of post-traumatic stress disorder. The data was collected after the ICD was implanted, which makes it difficult to determine whether the increased anxiety and depression triggered the manifestation of phantom shock, or were the result of this phenomenon.

Discussion

Interpretation

A major strength of this literature review provided evidence-based guidance for staff nurses that patients do suffer from anxiety due to ventricular arrhythmias and ICD discharges, therefore, patients' feelings and behaviors need to be validated, and assessed. Results reveal nurses need to use various types of interventions in order to make a difference in the emotional stress that patients are suffering after ICD placement and shock therapy. One intervention may not be enough to make a difference (Edelman, Lemon, & Kirkness, 2007).

Anxiety has been identified as a catalyst to poor outcomes in cardiac patients and may increase the risk of sudden cardiac death through changes in the autonomic regulation (Kubaznsky, et al., 1998). Furthermore, research revealed patients are not the only people suffering from emotional distress. Sowell, Sears, Walker, Kuhl, and Conti, 2007, found that spouses of ICD patients experience higher levels of shock anxiety than ICD patients themselves. Pederson, Van Domburg, Theuns, Jordaens, and Erdman (2004) demonstrated that 42% of spouses met criteria for significant anxiety and only

31% of ICD patients met criteria. These studies suggested that spouses benefit from device education support groups and referrals for psychological care.

It is also noted, that single nursing interventions may not alleviate any anxiety; therefore, more intensive nursing interventions and possibly protocols may need to be put in place (Edelman, Lemon, & Kirkness, 2007). ICD patient education remains an essential component because many ICD specific concerns can be traced to poor understanding of the intricacies of the device. Patients desire knowledge regarding the mechanics of their devices, events that trigger shock and how to proceed after shock has occurred. Patients may benefit from education regarding everyday ICD functions in relation to occupational limitations, physical and sexual activity, driving, and electromagnetic interference. Similarly, evidence based research reveals that patients who have the ability to have contact with providers via follow-up phone calls experienced a significant reduction in ICD-related physical symptoms and anxiety over 3 months compared to others who did not (Doughtery, Pyper, and Benoleil, 2004). Nurses and hospitals should be engaging in topics to decide if a formal intervention protocol would benefit them and if they have the capacity to initiate a cognitive behavior therapy program or stress relaxation program for their patient population who have ICDs. Nurses can be empowered to spend extra time in holistic care, providing patients as well as their family members with one on one time to answer questions and provide information if requested.

Outcome

I hosted an educational session for cardiovascular nurses who work in a Midwestern teaching hospital on September 21, 2011. The “ICD: A little shocking to

your emotional health” presentation (Appendix A) was developed based on findings from the extensive review of the literature. The objectives of the presentation included

1. Bring awareness to nurses that patients do encounter emotional stress from an ICD – whether it’s due to placement or from appropriate shock therapy.
2. Anticipate what patients perceive after ICD placement and after they have received appropriate shock therapy.
3. Outline nursing interventions that they may initiate themselves.

The presentation was given during Mayo Clinic’s Cardiovascular (CV) Specialty Days among four other speakers. Invitations for the event were distributed throughout the hospitals’ nursing education department including all three CV Intensive care units and their step-down floors. There were 52 people in attendance. The audience was staff or management nurses within the CV division at the hospital. There was also noted to be educators, as well as pharmacists and physicians within the audience. Each member of the audience was given a hard copy of the presentation including a list of references.

An evaluation of the presentation was completed by the most of the audience (38/52) following the presentation (Appendix B). The evaluation consisted of five statements in which the attendees rated each of the five statements using a Likert scale. The evaluation also included a section for written comments. The evaluation rated the presenter’s preparation and knowledge of the material being presented, the delivery of the presentation, and the importance of the information being presented. The evaluation also asked the attendees to decide whether they would be more apt to consider implementing nursing interventions for this patient population. All of the information was tallied and is

included in the appendices. This evaluation aided in proving that the educational session was beneficial and effective in educating nurses about the emotional effects of ICDs.

The expected outcome of this project was to bring awareness to nurses that patients do encounter emotional stress from appropriate shock therapy and that they have the power to help their patients. The evidence is clear that some patients do suffer emotional effects from an ICD and that nursing interventions can help some of these patients to cope with the emotional stress. It was expected each nurse would be able to learn about what patients perceive after they have received appropriate shock therapy. It was also expected that nurses may gain nursing interventions that they may initiate themselves.

The response from the presentation was overall positive. Appendix D is attached to reveal the results of the evaluations for the deliverable. Most participants agreed that the presentation was well organized and clearly presented. All attendees agreed that I was knowledgeable and well prepared for the presentation. Almost all people revealed that they had learned new information about the importance of nursing interventions for patients who have received appropriate shock therapy; however there were two that disagreed with this statement.

Implications for Nursing

The information summarized in this review significantly impacts nursing practice, education, and research. The implications of this review also reflect the need for nurses to play an active role in addressing the issue with physicians and being a patient advocate. Nurses need to advocate for patients by raising awareness about the health benefits associated with emotional stress caused from appropriate ICD shock therapy.

Practice

The findings of this project directly affect nurses. This does not include only staff nurses, but also includes the administrative nurses who may be able to initiate protocols for this patient population. The nurses were educated regarding the evidence based research and practice regarding the emotional effects of the ICD and the results of interventions. Staff nurses in these areas play a primary role in health promotion education and awareness for this patient population. Nurses may also play a positive role by influencing these patients to speak about their feelings towards their individual situation. In order to make a difference using nursing interventions, it is necessary that nurses understand the factors that influence the emotional stress caused from appropriate ICD shock therapy. These nurses were given information from various research articles which proved that these evidence based nursing interventions may help to improve these patients' quality of life.

Education

In addition to educating staff nurses about the issue of emotional stress caused from appropriate ICD shock therapy, the primary goal of the comprehensive literature review, project, and presentation is to educate nurses on what they can do individually to help this patient population.

The attendees agreed that the presentation, AICD: A Little Shocking to Your Emotional Health, empowered them to provide nursing interventions if they were to encounter a patient who seemed to be affected by the emotional stress of their ICD. Interventions may include recognizing that many people's emotional health can be affected by ICD placement, and having a discussion with the patient prior to placing the

ICD regarding emotional health may be effective as well. Individual hospitals can set up a protocol to ensure that each patient is able to keep in touch with providers to discuss their emotional health periodically throughout the first year, if not beyond. Although the focus of this project was to educate nurses about nursing interventions, it is just as imperative that physicians, patients, and family members be made aware of potentially harmful emotional side effects.

Policy

Nursing's foremost goal is to advocate for patients and their families. Nurses need to bring attention to the situation of the patient's emotional health, as well as their physical health. In addition, nurses spend the most time with their patients and may be the first health care worker to notice emotional distress caused from the patient's ICD shock therapy. The studies in this review can be used to create protocols for patients who have received appropriate shock therapy from their ICD. During the evaluation of the presentation, it was wonderful to find that all of the participants could agree that they were more apt to consider supporting a policy to help establish nursing interventions for this subset population

Research

Current research indicates patients do experience emotional stress from their shock therapy from their ICD. While there have been many studies on nursing interventions as a group effort, more studies are needed that specifically focus on individual nursing interventions which can be accomplished immediately during or after the situation has occurred. Many of the studies that provided evidence supporting the nursing interventions go back as far as the early 1980's however; it seems we have not

made strides with addressing the problem. Unfortunately, due to the increase in the number of ICD placements, these problems are becoming more prevalent with each year, yet we do not have a definitive tool to help ease the emotional stress.

Limitations

I will need support from the CCU staff development nurses in order to implement this project. They have known of my project and were excited to have me present for the CV Specialty Days. This will be a great way to help educate other CV nurses regarding the emotional affects of ICDs and the nursing implications that we can use to help improve their emotional health.

Unfortunately, not all or even half of the CV nurses actually attended the event. I was only able to reach a small number of nurses compared to the vast number of nurses that work in the CV division. Therefore, additional educational sessions may be needed to reach the majority of nurses who will have the opportunity to implement these nursing interventions.

Summary/Conclusion

Nurses can have a significant impact on the health of patients suffering emotional stress from their shock therapy from their ICD and many challenges are associated with patients who suffer from ventricular arrhythmias and shock therapy. Research, education, and advocacy are vital to nursing interventions for this subset population. This Independent Project has laid the foundation for future endeavors, such as educational sessions. This educational session can be the foundation for creating protocols or educational pamphlets that may help this subset population and their quality of life.

After the presentation of the deliverable, I was approached to give a presentation to the patient population of the Brave Hearts Support group. I am looking at possibly presenting to them in the fall of 2012. This will be a wonderful opportunity to help decrease the knowledge gap regarding emotional affects of the ICD.

This Independent Project has laid the foundation for future endeavors, such as the foundation to later consider research papers or initiating protocols. It has given the nurses empowerment to be these patients' advocates and help them to withstand the emotional affects that may be an effect of the ICD. I envision all patients who have an ICD receiving a pamphlet, which describes the emotional effects of the ICD, as well as the many interventions that can help to overcome the emotional effects and improve their quality of life.

References

- Awan, Z. A., Hassan, M., Bangash, K., Shah, B., Noor, L. (2009). Electrical storms and their prognostic implications. *Journal of Ayub Med Coll Abbottabad*. 21 (3), 155-158.
- Bastable, S. B. (2006) *Essentials of patient education*. Sudbury, MA: Jones and Bartlett Publishers.
- Birnie, D. H & Keren, A. (2009). Living with an advisory ICD: How are the patients doing? — Actually just fine. *Pacing Clin Electrophysiology*. 32, 1004-1005.
- Burg, M. M., Lampert, R., Joska, T., Batsford, W., and Jain, D. (2004). Psychological traits and emotion-triggering of ICD shock-terminated arrhythmias. *Psychosomatic Medicine*. 66, 898-902.
- Burke, J. L., Hallas, C. N., Clark-Carter, D., Whitel, D., & Connelly, D. (May, 2003). The psychosocial impact of the implantable cardioverter defibrillator: A meta-analytic review. *British Journal of Health Psychology* 8 (2), 165-179.
- Clegg, K. A. (2010). Some Gestalt contributions to psychiatry. *Journal of Psychiatric Practice*, 16 (4), 250-252.
- Connolly, S. J., Dorian, P., Roberts, R. S., Gent, M., Bailin, S., Fain, E. S., Thorpe, K., Champagne, J., et al. (2006). Comparison of β -Blockers, Amiodarone Plus β -Blockers, or Sotalol for Prevention of Shocks from Implantable Cardioverter Defibrillators: The OPTIC Study: A Randomized Trial for the Optimal Pharmacological Therapy in Cardioverter Defibrillator Patients (OPTIC) Investigators. *JAMA*. 295(2), 165-171.

- Dickerson, S. S., Posluszny, M., & Kennedy, M. C. (2000). Help seeking in a support group for recipients of implantable cardioverter defibrillators and their support persons. *Heart lung*, 29 (2), 87-86.
- Dougherty, C. M., Pyper, G. P., and Frasz, H. A. (2004). Description of a nursing intervention program after an implantable cardioverter defibrillator. *Heart & Lung*, 33 (3), 183-190.
- Dougherty, C. M., Benoliel, J. Q., & Bellin, C. (2000). Domains of nursing intervention after sudden cardiac arrest and automatic internal cardioverter defibrillator implantation. *Heart & Lung*, 29, 79-86.
- Donahue, R. G., Lampert, R., Dornelas, E., Clemow, L., & Burg, M. M. (2010). Rationale and design of randomized clinical trial comparing stress reduction treatment to usual cardiac care: the reducing vulnerability to implantable cardioverter defibrillator shock-treated ventricular arrhythmias (RISTA) trial. *Psychosomatic Medicine* 72, 172-177.
- Dunbar, S. B., Langberg, J. J., Reilly, C. M., Viswanathan, B., McCarty, F., Culler, S. D., O'Brien, M. C., & Weintraub, W. S. (2009). Effect of a psychoeducational intervention on depression, anxiety, and health resources use in implantable cardioverter defibrillator patients. *Pacing Clinical Electrophysiology*, 32 (10), 1259-71.
- Edelman, S., Lemon, J., & Kidman, A. (2003). Psychological therapies for recipients of implantable cardioverter defibrillators. *Heart & Lung* 32, 234-240.

- Edelman, S., Lemon, J., & Kirkness, A. (2007). Educational intervention for patients with automatic implantable cardioverter defibrillators. *Australian Journal of Advanced Nursing*. 24 (3), 26-32.
- Edelman, S. & Lemon, J., (2007). Psychological adaptations to ICDs and the influence of anxiety sensitivity. *Psychology, Health, and Medicine*. 122, 163-71.
- Eifert, G. H., Forsyth, J. P., & Schauss, S.L. (1993). Unifying the field: Developing an integrative paradigm for behavior therapy. *Journal of Behavior Therapy and Experimental Psychiatry*. 24 (2), 107-118.
- Fauci, A., Braunwald, E., Isselbacher, K., Wilson, J., Martin, J., & Kasper, D. (2008) *Harrison's Principles of Internal Medicine*. (17th ed.) United States: McGraw-Hill Professional.
- Fricchione, G. L., Olson, L. C., & Vlay, S. C. (1989). Psychiatric syndromes in patients with the automatic implantable cardioverter defibrillator: anxiety, psychological dependence, abuse, and withdrawal. *American Heart Journal*. 117, 1411-1414
- Gallager, R.D., McKinley, S., & Mangan, B. (1997). The impact of the implantable cardioverter defibrillator on quality of life. *American Journal of Critical Care*. 6, 16-27.
- Gestalt Theory. (2011). Gestalt theory oneness and integrated wholeness. Retrieved from: <http://www.gestalttheory.com>
- Kohler, W. (1959, Dec). Gestalt psychology today. *American Psychologist*. 14 (12), 727-734.

- Geyer, M. A. and Markou. A. (1995) Animal models of psychiatric disorders in *Psychopharmacology: The fourth generation of progress*. New York: Raven, 787-798).
- Hamner, M., Hunt, N., Gee, J., Garrell, B. S., & Monroe, R. (1999). PTSD and automatic implantable cardioverter defibrillators. *Psychosomatics*. 40 (1), 82-85.
- Hergenhaha, B.R., & Olson, M.H. (2004). *An Introduction to theories of Learning* (7th ed.) Upper Saddle River, NJ: Prentice Hall.
- Irvine, J., Dorian, P., Barker, B., Linden, M., Schlegl, M., Schultheiss, J. P., & Behrens, S. (2002). Quality of life in the Canadian Implantable Defibrillator Study (CIDS). *American heart journal*. 144 (2), 282-289.
- Johns Hopkins Medicine. (2011). Sudden Cardiac Death. Retrieved from: <http://pathology.jhu.edu/scd/prevention.html>.
- Keren, R., Aaron, D., & Veltri, E. (1991) Anxiety and depression in patients with life-threatening ventricular arrhythmias: Impact of the implantable cardioverter-defibrillator. *Pacing Clin Electrophysiology*. 14, 181–186.
- Kubzansky, L. D., Kawachi, I., Weiss, S. T., & Sparrow, D. (1998). Anxiety and coronary disease heart disease: A synthesis of epidemiological, psychological, and experimental evidence. *Annals of behavioral medicine*. 20 (2), 47-58.
- Kubzansky, L. D., Koenen, K. C., Spiro, A. III, Vokonas, P. S. & Sparrow, D. (2007). Prospective study of posttraumatic stress disorder symptoms and coronary heart disease in the normative aging study. *Archives of general psychiatry*. 64 (1), 109-116.

- Kowey, P. R., Marinchak, R., & Rials, S. (1993). More things that go bang in the night (Letter). *New England Journal of Medicine*. 328, 1570-1571.
- Kuhl, E. A., Dixit, N. K., Walker, R. L., Conti, J. B., & Sears, S. F. (2006). Measurement of patient fear about implantable cardioverter defibrillator shock: an initial evaluation of the Florida Shock Anxiety Scale. *Pacing Clinical Electrophysiology*. 29 (6), 614-18.
- Lampert, R., Joska, T., Burg, M. M., Batsford, W. P., McPherson, C. A., & Jain, D. (2000) Clinical Investigation and Reports: Destabilizing effects of mental stress on ventricular arrhythmias in patients with implantable cardioverter defibrillators. *Circulation*. 101, 158-164.
- Lampert, R., Joska, T., Burg, M. M., Batsford, W. P., McPherson, C. A., & Jain, D. (2002) Emotional and physical precipitants of ventricular arrhythmia. *Circulation*. 106, 1800-1805.
- Luyster, F. S., Hughes, J. W., Waechter, .D, & Josephson, R. (2006). Resource loss predicts depression and anxiety among patients treated with an implantable cardioverter defibrillator. *Psychosomatic Medicine*. 68, 794-800
- Mayo Clinic. (2010). Implantable Cardioverter Defibrillators. Retrieved from <http://www.mayoclinic.com/health/implantable-cardioverter-defibrillator/MY00336/DSECTION=why-its-done>.
- Macnee, C.L., & McCabe, S. (2004). *Understanding nursing research: Reading and using research in evidence-based practice* (2nd ed.) Philadelphia: Lippincott, Williams, & Wilkins.

- McEwen, M. & Willis, E. (2007). *Theoretical basis for nursing*. (2nd ed.) Philadelphia, PA: Lippincott Williams & Wilkins.
- MedicineNet.com (1998). Definition of arrhythmias, ventricular. Retrieved on April 19, 2010 from <http://www.medterms.com/script/main/art.asp?articlekey=2332>.
- MedicineNet.com (2001). Definition of ventricular tachycardia. Retrieved on April 19, 2010 from <http://www.medterms.com/script/main/art.asp?articlekey=5982>.
- Metoyer, P. (2005). Psychological Management of the ICD patient: What have we learned? *EP Lab Digest*. 10, 5-7.
- Parkes, J., Bryant, J., & Milne, R. (2000). Implantable cardioverter defibrillators: arrhythmias. A rapid and system review. *Health Technology Assess*. 4, 1-69.
- Pedersen, S. S., Van Domburg, R. T., Theuns, D. A., Jordaens, L., & Erdman, R. A. (2004). Type D personality is associated with increased anxiety and depressive symptoms in patients with an implantable cardioverter defibrillator and their partners. *Psychosomatic Medicine*. 66 (5), 714-719.
- Pedersen, S. S., Theuns, D. A., Erdman, R. A., & Jordaens, L. (2008). Clustering of device-related concerns and type D personality predicts increased distress in ICD patients independent of shocks. *Pacing Clin Electrophysiology*. 31, 20-27.
- Pramar, A. (2011). Study that says ICDs save lives doesn't counter JAMA article on overutilization. *MedCity news*. Retrieved from <http://www.medcitynews.com/2011/06/study-that-says-icds-save-lives-doesnt-counter-jama-article-on-overutilization/>.
- Prudente, L. (2003). Phantom shocks in a patient with an implantable cardioverter defibrillator: Case report. *American Journal of Critical Care*. 12 (2), 144-146.

- Prudente, L., Reigle, J., Bourguignon, C., Haines, D. E., & DiMarco, J. P. (2006). Psychological indices and phantom shocks in patients with ICD. *Journal of interventional cardiac electrophysiology*. 15 (3), 185-190.
- Reid, S. (1993). After VT: Living with an ICD implant. *Australian nurses journal*. 22 (9), 8-13.
- Rochester Medical Center. (2010). What is an ICD and what does it do? Retrieved on April 19, 2010 from http://www.rochestermedicalcenter.com/implantable_defibrillators.htm.
- Schron, E. B., Exner, D.V., Yao, Q., Jenkins, L. S., Steinberg, J. S., Cook, J. R., Kutalek, S. P., Friedman, P. L., et al. (2002). Quality of life in antiarrhythmics versus implantable defibrillators trial: Impact of therapy and influence of adverse symptoms and defibrillator shocks. *Circulation*. 105 (5), 589-594.
- Sears, S. F., Todaro, J. F., Lewis, T. S., Sotile, W., & Conti, J. B. (1999) Examining the psychosocial impact of implantable cardioverter defibrillators: a literature review. *Clin Cardiology*. 22 (7), 481-489.
- Sears, S. F., Vazquez, L. D., Matchett, M., & Pitzalis, M. (2008). State-of-the-art: Anxiety management in patients with implantable cardioverter defibrillators. *Stress and health*. 24 (3), 239-248.
- Sears, S., Matchett, M., & Conti, J.B. (2009,). Effective management of ICD patient psychosocial issues and patient critical events. *Journal Cardiovascular Electrophysiology*. 20 (11), 1297-1304.
- Sola, C & Bostvick, M. (Feb, 2005). Implantable cardioverter-defibrillators, induced anxiety, and quality of life. *Mayo Clinic Proceedings*. 80 (2), 232-237.

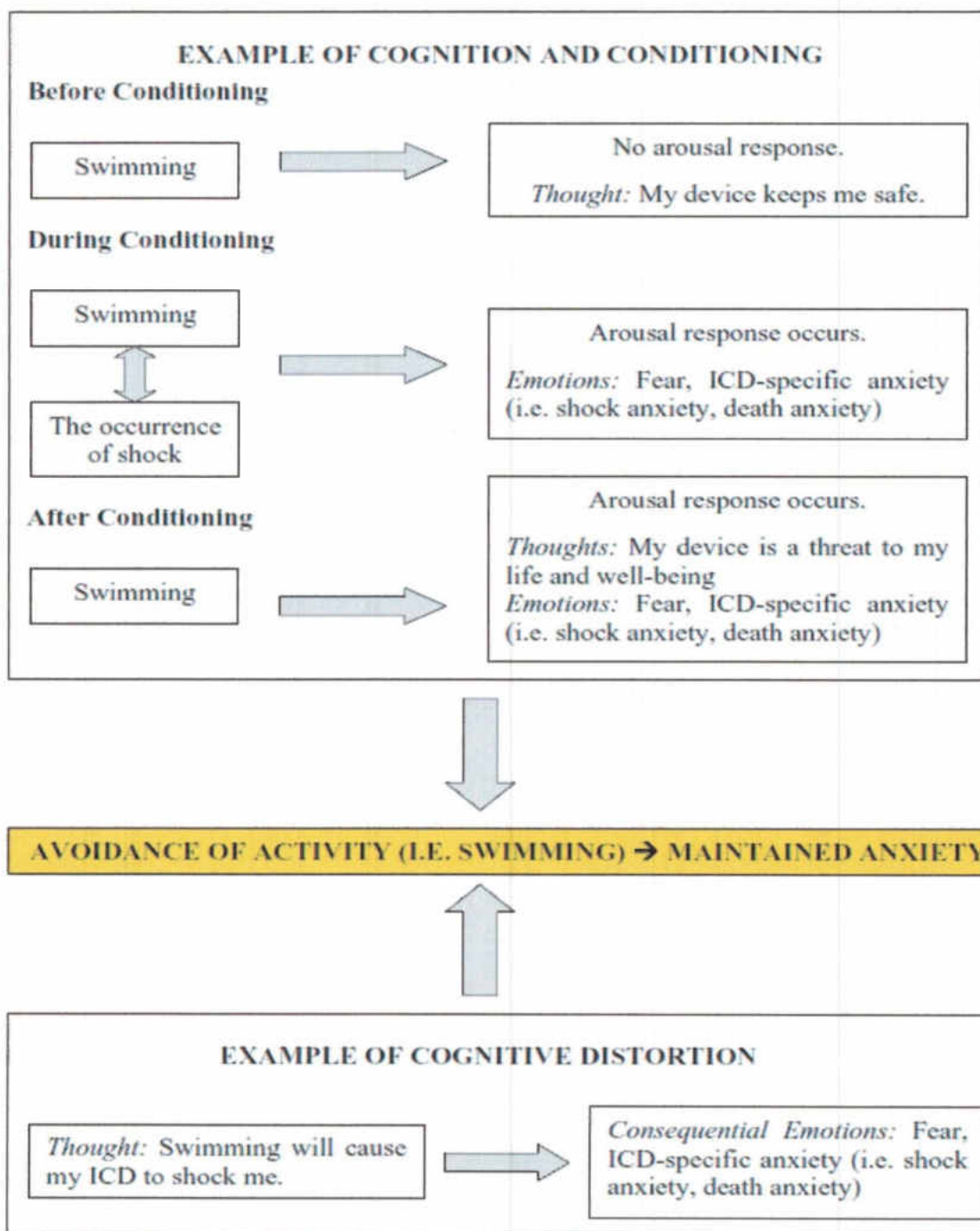
- Sowell, L. Z., Sears, S. F., Walker, R. L., Kuhl, E. A., & Conti, J. B. (2007). Anxiety and marital adjustment in patients with implantable cardioverter defibrillator and their spouses. *Journal of cardiopulmonary rehabilitation and prevention*. 27 (1), 46-49
- Stemberger, Gerhard. (2011). Gestalt Theory (Wertheimer) Retrieved from <https://online.und.edu/webapps/>.
- Van der Kolk, B.A., Greenberg, M. S. & Boyd, H. (1984). Hypersensitivity to *d*-amphetamine several years after early social deprivations in rhesus monkeys. *Psychopharmacology*. 82, 266-271.
- Vlay, S. C., Olson, L. C., Fricchione, G. L., & Friedman, R. (1989, Feb). Anxiety and anger in patients with ventricular tachyarrhythmias. Responses after automatic internal cardioverter defibrillator implantation. *Pacing Clinical Electrophysiology* 12 (2), 366-373.
- Wetheimer, M. & King, D (2007). Max Wetheimer and Gestalt Theory. *American psychology association*. Washington, DC.

Appendices

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Appendix B	Deliverable
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Appendix A: Figures

Figure 1:



Sears, S. F., Vazquez, L. D., Matchett, M., & Pitzalis, M. (2008). State-of-the-art: Anxiety management in patients with implantable cardioverter defibrillators. *Stress and health*. 24 (3), 244.

Appendix B: Deliverable

AICD A Little Shocking to your emotional health

Lindsay Olson
BSN, RN, CCRN, FCCS
Staff Nurse on Mary Brigh 4 DE (CCU)
Student of University of North Dakota

Objectives

1. To bring awareness to nurses that patients do encounter emotional stress from an ICD – whether it's due to placement or from appropriate shock therapy.
2. Each nurse will be able to learn more about what patients perceive after ICD placement and after they have received appropriate shock therapy.
3. Nurses will gain valuable information regarding nursing interventions that they may initiate themselves.

So, how does this affect me?

The findings of this project directly affect staff nurses. The information learned will help you to help your patient. Cardiovascular nurses play a primary role in health promotion, education, and awareness. Nurses play a positive role in influencing patients to speak about their feelings towards their individual situation. In order to make a difference using nursing interventions, it is necessary that nurses understand the factors that influence the emotional stress caused from appropriate AICD shock therapy. This information may prompt you with ideas for policy or protocols.

Remember...

Our patients are people. I come from a small town, where everybody knows your name...and your story. Think of how you would want to be treated or how you would want your loved ones treated. Our patients are people, we do not work on assembly line. What we do can make a difference!

Internal Cardioverter Defibrillator

ICD

History of the ICD

- The Implantable Cardioverter Defibrillator (ICD) was approved for use in 1985 to treat potentially lethal ventricular arrhythmias by delivering an electrical impulse to the heart to convert the lethal rhythm back to a normal rhythm (Parkes, Bryant, Milne, 2000).
- The effectiveness of the ICD in preventing sudden cardiac death (SCD) is based on its proven capacity to convert 98% of ventricular tachycardia to NSR (Kowey, Marinchak, Rials, 1993).

MOST IMPORTANTLY
We are making a difference with ICD
placement decreasing mortality!

Growing Numbers in ICD placement

Implantation rates are increasing; therefore, we may see an increasing amount of emotional distress.

Over time, there has been growing support to research on how to improve the impairment that appropriate shock therapy from an ICD can cause.

Mayo placed approximately 520 ICDs this past year according to Rosemary Horsman, RN (Mayo Clinic's pacemaker/ICD educator). She states this number is growing each year as well.

The unfortunate stress

Researchers are finding that these patients are encountering various types of emotional stress, as well as some psychological disorders, in turn possibly decreasing their quality of life.

"Although the ICD offers a confirmed mortality benefit, it may incite psychological adjustment issues within recipients" (Sears, Vazquez, Matchett, Pitzalis, 2008).

Picture from http://www.familywellness.com/wp-content/uploads/2010/07/woman_in_stress.jpg

Research suggests

- If patients are receiving shock therapy, particularly five or more shocks, it was associated with decreased quality of life (Irvine et al, 2002).
- Anxiety has also been associated with poor outcomes and may actually increase the risk of sudden cardiac death by changing the autonomic regulation of the heart (Kubzansky, Kawachi, Weiss, & Sparrow, 1998).
- 50% of the patients who experienced conscious AICD discharges stated that they felt more anxious as a direct result of their experiences with the AICD. (Keren, Aaron, & Veltri, 1991).
- Approximately 55% of ICD patients regularly engage in avoidance of activities, places, and people due to fear (Edelman, Lemon, and Kirkness, 2007).

Real patients telling their story...

My name is Joan and what a year I've had. My husband (aged 33) died of a SCA January 2010 and I was fitted with an ICD March 2010 as I have non-obstructive HC. We have three wonderful boys aged just one and 4, and 5. We were all doing ok until my ICD fired three weeks ago and since then I just don't know how I'm feeling. It fired three times, the first two failed and the third brought rhythm back.

I honestly never thought it would happen. Since then I'm really sore, my chest and back in particular. I've been trying to find anything about soreness after shock but am coming up with nothing. My head is all over the place and I am now just waiting for the next one. I'm feeling all sorts of things in my chest and I'm telling myself it's in my head.

The doctors have started me on Cordarone so hopefully that'll sort something out.

Can someone out there help me put my mind at ease regarding the soreness?

Sudden Cardiac Arrest Association (2010-2011)

I have had an ICD since Dec. 12, 2008 I have had many shocks. I don't feel much pain after, but mentally I'm a wreck. It takes me weeks to get back to normal. Every little thing that happens I wonder if I'm going to get shocked. It's hard just writing this. My doctor turned a part off and just says "live your life". Easy for him to say. I think it upsets me more knowing why it was having to shock me. But so far so good, I am still here because of it! :)

I would rather be shock by a fully charged 12 volt battery (then to be shocked by my ICD) and I have before. Total, I have been shocked 11 times since installed 03/19/2010. The first time was right after sex 2 times, 7 times in the shower. The last two times, right again after sex. I no longer take long showers. About a year ago, I had 4 teeth pulled out with no drugs due to my gums were full of poison and the drug had no reaction so they shot me up four times with no effect. The dentist said take pills and come back in two weeks. I said I have been here for 2 and 1/2 hours already so rip them out. I could feel every tooth crumble up from the pliers. Then the roots ripped out. That's better than the 1st shock.

Sudden Cardiac Arrest Association (2010-2011)

The best advice he gives him is take baby steps to regain your confidence - like talk a short walk once a day, if you feel panicked or anxious focus on something like...your daily routine or what you need for your daily shop. Also breathing exercise....Graham even counts bricks on the pavement if he feels anxious. He's been through so much and I'm so proud of him as he just keeps trying, but there are always days where he is constantly panicked for the smallest tweak or if he's overtired. Being very sore is very normal especially after 3 shocks.

Sudden Cardiac Arrest Association (2010-2011)

I was diagnosed with an enlarged heart (assumed congenital birth defect) with no other heart disease. In fact, I have been extremely healthy and active (running, hiking, bicycling) all my life. I went into VT one night and survived only because my husband was with me. They inserted an ICD and I was unlucky to go into a VT storm (back to back VT) about a month later, receiving a total of 19 shocks within a 10 minute period. That's another story, but the point is, it saved my life. I've also had an ablation done, and it's my understanding that it's not necessarily a cure. As you're recovering from ablation, your heart finds new electrical pathways to beat properly, but if you have an enlarged heart I believe you're always at risk for arrhythmias. Although getting shocked by an ICD is painful and scary, having one gives you freedom you wouldn't otherwise have - and it absolutely can save your life!

Sudden Cardiac Arrest Association (2010-2011)

Anxiety EBP

Evidence Based Practice

Watch Me

Anxiety EBP

- A study published in 1999 found that 13-38% of recipients experience clinical significant levels of anxiety, regardless if shock therapy was initiated (Sears et al., 2008).
- Patients feel out of control and therefore, yearn for some type of control which can be manifested by attempting to predict their shocks. Monitoring of sign of impending shock begin to increase leading to hyper vigilance regarding body sensations often provoked by anxiety (Metoyer, 2005).
- When a patient begins to feel anxious or depressed, they begin to feel less secure and less satisfied with the ICD therapy and report a decrease in quality of life (Metoyer, 2005).

Anxiety EBP

- Vlay, Olson, Fricchione, and Friedman in 1997 assessed the psychological profile of patients with malignant ventricular tachyarrhythmias. The evaluation indicated a high degree of anxiety and anger (Vlay et al., 1989).
- Lampert, Joska, Burg, Batsford, McPherson, & Jain, (2002) conducted a study using 277 patients who had received ICDs for clinical or inducible ventricular arrhythmias and were followed at the Yale New Haven Hospital from July 1996 to March 1999. The exclusion criteria were significant psychiatric illness and inability to read or be interviewed in English. Patients with ICDs were given diaries to record levels of defined mood states and physical activity, using a 5-point intensity scale, during two periods preceding spontaneously occurring ICD shocks (0 to 15 min to 2 hours) and during control periods one week later. This study revealed that anger can trigger ventricular arrhythmias in patients with ICDs, as well as can physical exertion.

Anxiety EBP

- Emotional distress, specifically anxiety, can also be harmful on the body and can even alter a person's autonomic regulation of the heart which can make them more prone to arrhythmias and cardiac problems (Kawachi, Weiss, & Sparrow, 1988). It could be assumed that if somebody is anxious, then it could alter the rhythm causing the ICD to initiate therapy, causing the person more anxiety. This vicious cycle could then possibly alter the regulation system leading to more ventricular arrhythmias and more ICD therapy.

- Patient lying in his bed grabbing his chest talking to his heart and God asking them both not to allow him to go back into VT.
- Patient slept all night after being given Xanax and Ambien. Patients call light is on first thing when the sun comes up. She is straight up in bed watching the monitor stating she's very nervous. Half hour later, patient is having runs of PVCs and by 7:30am during report, she has just received her first shock for the day.
- Patient has his light on. Walk in and he is pounding his chest watching the monitor. "Aren't you going to do anything? I'm in Vfib". Patient educated regarding Vfib and what the rhythms look like on the monitor, especially when he is scratching or pounding himself in the chest. The education seemed to calm him down and he quit hitting himself.

- Patient who was being discharged and was so upset that she was going to be discharged. It was figured that she actually had a catecholamine release and caused herself to go into VT and receive a shock.
- Patient who would wake up on the ventilator and throw herself into VT requiring a shock. It happened multiple times that day. Required better sedation with Versed and Precedex to come off of the tube.

Patients may try to self-medicate with harmful behaviors...

Help me before I help myself

Mammer, Hunt, Gee, Garrell, and Monroe (1999) revealed case studies of patients who all met criteria for PTSD based on DSM-IV.

- One person began drinking alcohol at night to calm down and sleep. His intrusive thoughts of the ICD, avoidance of situations and activities, and increased arousal symptoms were consistent with a diagnosis. He was able to improve due to medication administration and was able to qualify for a cardiac transplantation.
- The second case became preoccupied with thoughts of the ICD when he had any physical symptoms and avoided activities that could increase his heart rate and/or remind of the ICD (walking, sexual activity, yard work). He acknowledged irritability, insomnia, heart palpitations which were associated with thoughts of the ICD. He was also recommended medication and supportive psychotherapy.

Questions & Answers...

Question & Answers from real people found on a forum. These people are asking each other, yet they may not be asking you.

I feel scared, depressed, etc. Is this normal?

- This is very common among all readers of *The ZAPPER* - ICD recipients and their loved ones. In fact, if you do not experience this, you are the exception. Because it's a pretty normal reaction to needing a piece of electronic hardware inside you to stay alive, it is imperative you find ways to deal with it. For extreme cases, your doctor may prescribe psychotropic drugs such as Paxil or Xanax.
- As time passes, you may be able to stop taking drugs as you find other ways to deal with the fear and depression. Many of us find just "talking about it" is every bit as effective as drugs. Local ICD support groups are great for providing this kind of outlet.

<http://www.zaplife.org/faq4.htm>

What does a shock (aka: "zap" by us and "therapy" by doctors) feel like?

- That's a tough one. Like a sneeze, everyone's reaction is different. Some people describe it like being kicked by a mule, others hit by a two by four, still others describe the rush of electricity through their body to ground. Some people black out and may collapse before "therapy" is administered. Others are conscious for the whole thing. The lucky ones feel a little tingle. Suffice it to say, it's not the most pleasant experience that you will encounter during your life. However, it sure beats the alternative!
- Some times a single shock is enough to restore your heart back to a normal rhythm, other times you make be shocked multiple times. This is often referred to as an "electrical Storm."

<http://www.zapfile.org/zap4.htm>

Zappers?

Zappers come in two flavors:

- Joeys are Zappers who haven't received their first shock.

Once you've been zapped and bounced back to life - you become a full fledged **Electric Kangaroo!** Even those who receive an inappropriate zap - such as those caused by a programming error - qualify for the full "Roo" status. We adopted the reference to the Australian Marsupial because we can do a lot of hopping and we have a little pouch built in for our EMS crew.

<http://www.zapfile.org/zap4.htm>

Will my husband/wife be afraid to touch me?

- He or she shouldn't unless your husband/wife was afraid to touch you *before* your implant. Even if someone is in contact with you when the device zaps you, that person will not be hurt. At most, a bystander may feel a little tingle. One reader wrote to say his spouse actually enjoyed the feeling during an intimate moment.

<http://www.zapfile.org/zap4.htm>

Phantom Shocks...

Phantom Shock Case Study

- Patient at night asked us, "Did you see that" I was just shocked - Go look on the monitor." Sorry sir, I don't see anything.
- Have you ever heard of phantom shocks? I sometimes get those at night.
- During the night he awoke many times with multiple episodes of phantom shock. Finally, we convinced the service to sit down and talk with him. The resident found a research article regarding phantom shocks and was convinced these were phantom shocks.
- The patient received some Ativan and the patient was able to sleep the rest of the night. In the AM he stated he didn't receive any more shocks after receiving the medication.

- Prudente, Reigle, Bourguignon, Haines, & DiMarco, (2006) hypothesized that phantom shocks may be a manifestation of anxiety, depression, or post-traumatic stress disorder (PTSD).
- They concluded that patients with phantom shocks are more likely to be clinically depressed and have higher levels of anxiety than other ICD patients, regardless of history of actual shocks.

What are phantom zaps?

- Publisher, Jon Duffey is credited with first joining the words to form the name "Phantom Zap," having authored the term for an article he wrote in early 1995.
- This, like the depression and anxiety is pretty common. Many *Zapper* readers report being zapped (usually as they are going to sleep or waking up) but their subsequent ICD interrogation shows nothing happened. "OK, there was no 700 volt dose of therapy. But it sure felt like the real thing." Your doctor may tell you it was *just* your imagination, but that doesn't mean it is not a real problem that needs to be addressed. Some report relief by going to a hypnotist.

<http://www.zaplife.org/zap4.html>

One important thing to help stop these annoying episodes is to understand what is happening. Like the term "Phantom Zap," Duffey is responsible for this idea. It's only a theory but thinking about it this way has helped many accept them and gradually make them go away:

When your device was implanted, you were asleep.

After the device is implanted, doctors test the device to make sure it works on you.

Even though you were unconscious, the event was burned into your memory - but a section of memory that is not easily accessed when you are awake.

However, in that brief period between being woken and going to sleep - or during that period when you awaken from a nap or sleep - THOSE memories are accessed.

In that limbo state, what you experience is every bit as real as an actual dose of therapy.

Ultimately, when you accept them as a flashback of a reality from your past (the testing after implantation) they seem to lose their reason for being and fade away.

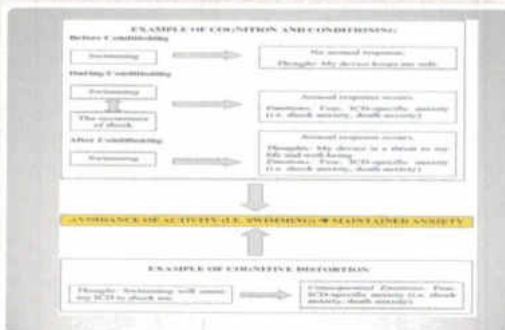
<http://www.zaplife.org/zap4.html>

Animals?

Evidence Based Practice

As with other types of diseases, researchers study animals and their effects of shock therapy. The animal model of learned helplessness is based on the observation that animals exposed to repeated, uncontrollable, or unpredictable aversive stimuli (e.g. electric foot shocks) from which they cannot escape eventually seem to "give up".

- Researchers found that animals who have encountered this type of trial of shock therapy often appear listless, anxious, or irritable; have decreased interaction with other animals; lose weight; and have difficulty learning new behaviors (Geyer & Markou, 1995 and Van der Kolk, Greenberg, & Boyd, 1984).
- These researchers found that the syndromes the animals encountered responded to antidepressants.



Swain, S. F., Vanzor, L. D., Mitchell, M., & Pizalis, M. (2009). State-of-the-art. Anxiety management in patients with implantable cardioverter defibrillators. *Embase stress and health*, 24 (3), 244.

Calling all NURSES!

Nursing interventions can directly increase people's quality of life when they are suffering from anxiety due to their AICD shocks.

It is possible that interventions may also decrease the number of ventricular arrhythmias.

What Mayo does....

Brave Hearts is our ICD Support Group which meets twice a year...spring and fall. Each session we have a special speaker. We've had various topics covered.....dieticians, airport personnel, device specialists, authors, device company tours, ICD patient panels...to name a few. Rosemary is always searching for ideas!

- Approximately 600 invites are mailed out per session. Our average attendance is 30 which includes the pt and their spouse or significant other. People that receive an ICD and are within a reasonable driving distance are invited.
- Our meetings are held at 3 pm here at St Marys in room 4-510. The general age for those attending are senior citizens....There is no cost. Our dept provides refreshments and complimentary parking passes.
- Any patient that has been implanted at Mayo and is within driving distance is automatically on the list.

Cognitive Behavior Therapy Program

- This type of therapy addresses link b/t thoughts, feeling, behaviors regarding ICDs and illness. This type of therapy provides a holistic view of providing the patient with tools to cope with psychological disorders and emotional distress. Sears, et al. (2006) found key facets of psychosocial interventions that seem to resonate most with a reduction in ICD-specific anxiety, including patient education, social support, relaxation/stress management training, and CBT. Cognitive behavior therapy goals are to provide patient with a new tool to fight fear of shock.
- According to Metoyer, 2005 there have been many reported positive outcomes from the initiation of Cognitive Behavior Therapy Programs. Relaxation techniques, breathing techniques, deeper relaxation are taught early and re-enforced through follow-up.

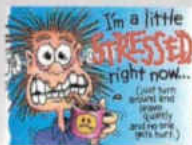
REMEMBER: ICDs are good...

People can live longer, be more productive, happier, and healthier. ICDs are life-savers that can add years of time for you to spend with your family and friends. Many patients have benefited from joining support groups. These groups help educate about the features and benefits of the ICD and give time for people to share their experiences and learn from others.



How do you feel when your computer stops working...some people's hearts want to stop beating ...people need their hearts in order to live. You don't even need your computer to live (possibly) – yet how frustrated are you when it stops working?

Picture from
<http://2.gizbl.com/images/7q-tbr-AhN9GcOEy4aXUYW3bcwukMcDgDax80RQXKYZ07cYVFCP8886>



These patients are in the hospital, not at home. One patient puts it, I just curl into a ball & wait for the next one to hit, instead they are tied to wires stuck in an unfamiliar environment.

Picture from <http://www.hospitalnews.com/2011/04/09/olson-02>

Thank you for your time...

Lindsay Olson

Keren et al. (1991) found that there were no significant differences in the responses to the questionnaire in the group of patients with AICD discharges and the group without AICD discharges.

This study also showed no significant differences in anxiety and depression in the three groups studied; nor did it find any significant differences in responses to the questionnaire directed specifically at the patients' experiences with the AICD.

Despite the scores on the Spielberger STAI, 50% of the patients who experienced conscious AICD discharges stated that they felt more anxious as a direct result of their experience with the AICD.

The study revealed that this could be explained by a difference in subjective understanding of anxiety experiences. Most of the patients questioned did not feel that the AICD had affected their mood.

Discuss what "Anxiety" means to your patient

Educate others...

Although the focus of this project was to educate nurses about nursing interventions, it is just as imperative that physicians, patients, and family members be made aware of the situation. Public support is necessary when implementing any changes in the social environment.

HEALTHY PEOPLE 2020

- [Get ready because it's coming](#) **Health-Related Quality of Life and Well-Being.**
- <http://healthypeople.gov/2020/topicsobjectives2020/default.aspx>
- <http://healthypeople.gov/2020/about/QRWBabout.aspx>

Initiate a Policy...

Information can be used to create policy and possibly protocols for patients who have received appropriate shock therapy from their AICD.

We need further research...

Are you in need of a project for your unit?

Support Groups

- Dunbar, Langberg, Reilly, Viswanathan, Mccarty, Culler, O'Brien, and Weintraub (2009) studied the effects of a psycho educational intervention on anxiety, depressive symptoms, functional status, and health resource use during the first year after ICD implantation.
- Two hundred forty-five patients who were randomized into three groups: usual care (UC), group counseling (GC), or telephone counseling (TC). They used the State-Trait Anxiety Inventory (STAI) to test anxiety, depressive symptoms using the Beck Depression Inventory and the patients' function status using the Duke Activity Status Inventory (DASI) which were measured at various intervals: baseline, and one, three, six, and twelve months.
- Results revealed that all groups experienced decreased anxiety and depressive symptoms over the 12 months. The group intervention was lower than the Usual care at 3 months. The usual care had greater calls to providers and 1 and 6 months and more sick/disability days at 12 months than intervention groups. They concluded that a psycho educational intervention reduced anxiety and depressive symptoms early after ICD implant, lowered probability of depressive symptoms at 1 year, and decreased disability days/ calls to providers.

Maybe you are looking for a project?

Assess your patients for...

- **Sadness:** Feeling sad, "having the blues," or crying episodes on more days than not.
- **No fun anymore:** No longer enjoying activities that you used to enjoy.
- **Harmful thoughts and feelings:** Thoughts of hurting or killing yourself, or severe feelings of hopelessness.
- **Avoidance:** Avoidance of activities, people, intimacy, or other situations that may raise your heart rate.
- **Excessive anxiety:** Feeling nervous, anxious, jittery, or tense more often than not, or being unable to get worries out of your mind.
- **Shock Fears:** Feeling afraid of future shocks, to the point that it severely limits your daily activities.

Sears, 2003

Talk

Engage in positive thinking.

The power of positive thinking involves realistically evaluating events in life and choosing to emphasize the desirable and valuable aspects. Talk with your patients about looking for the strengths in others and themselves. This can empower them with a renewed sense of purpose for your life.

- What are the positives in their life? How does having an ICD make things better?

When patient tell others how they feel, they can open the door to the care, love, and support they need. It is easier to let go of dark thoughts than it is to live with them. They can discover a healthier, happier life that is still ahead of them.

Sears, 2003

Provide Education

- Ask the patient what their needs are. Provide various topics and let them choose which ones.
- Educate them regarding what to do after an ICD firing, how does an ICD firing feel?
- Have they searched online for forums or support groups? (Minding to be careful regarding their resources).
- Provide resources and phone numbers as to who they can call regarding any questions.
- Provide education to patients regarding emotional distress to all who have received an ICD, as we learned from the EBP, some of these patients have never had an ICD firing or arrhythmia.

Plan for Shocks

"The ICD's job is to provide life-saving therapy to your heart. This therapy can sometimes be a shock. You need to have a plan for you and your family to respond in the event of a shock".

- Review the plan with their health care provider. What should the patient do if they receive a shock?

Sears, 2003

Work as a TEAM

- Do they need a customized "action plan" for ICD firing or does the brochure qualify?
- Do they need a psychiatric evaluation to help sort out the distress and possible medication to provide more long term effects?
- Do they need medication in the short term to help get them through?
- Are there electrolyte disturbances?

Unfortunately, there are gaps in research...

Nurses...it's up to YOU!

Nursing's foremost goal is to advocate for patients and their families. Nurses need to bring attention to the situation of the patient's physical health, as well as their emotional health. In addition, nurses are known to spend the most time with their patients. YOU may be the first health care worker to notice emotional distress caused from the patient's AICD shock therapy. YOU can make a difference by performing interventions yourself or as team approach.

Nursing Interventions EBP....

- Edelman, et. al, (2007) is a qualitative study of a brief educational intervention administered two weeks after Automatic Implantable Cardioverter Defibrillator (AICD) implantation on subsequent levels of anxiety, depression, stress and hostility.
- Provide the patient time to verbalize fear or concerns related to the device. Allowing discussion of the meaning of his/her illness, is an important aspect of a psychological plan for these patients (Metoyer, 2005).

Nursing Interventions EBP...

- Dougherty, Pyper, and Benoleil, 2004, also believed that it was important for patients to have close contact with providers and be given time to discuss their fears or concerns. These researchers contacted patients via a structure telephone intervention which was delivered by nurses to ICD patients during the first 8 weeks after implantation. They found that patients who received this form of social contact experienced a significant reduction in ICD-related physical symptoms and anxiety over 3 months as compared with a non-intervention control group.

Nursing Interventions EBP...

- More research reveals that patients need to be able to have time to verbalize their fears and thoughts in order to improve their emotional distress. Dickerson, Posluszny, and Kennedy, 2000 found that support groups have demonstrated some value in the ICD population as they allow patients to hear and tell stories, seek meaningful information, form therapeutic relationships and camaraderie, and relate to others on a unique, personal level.
- Nurses can initiate the conversation by using the statement, "Feeling stressed about the ICD is a normal reaction may spark the discussion (Metoyer,2005).

SPELL IT OUT...

ASSESS, LISTEN, EDUCATE, PLAN,
INTERVENE IF NEEDED

Nurses assess your patients

The term "cardiophobia" was described back in 1992 by Effert describing heart-focused anxiety symptoms, such as angina, palpitations, experienced by patients during times of stress and physiological arousal, despite even having a medical device (Sears et al., 2008).

Anxiety is the most predominant form of psychological morbidity for ICD patients

Appendix C: Evaluation

Evaluation Form for Presentation
 Evaluation of Presentation
 "AICD: A Little Shocking to Your Emotional Health"
 Given by: Lindsay Olson

Please rate of your overall assessment of the presentation relative to the statements provided below:
5- Strongly Agree 4 - Agree 3 - Somewhat Disagree 2 - Disagree 1 - Strongly Disagree

The presentation was organized and was clearly presented.	5	4	3	2	1
The presenter was prepared and knowledgeable about the subject.	5	4	3	2	1
I can identify the clinical problems associated with patients who have received appropriate shock therapy from their AICD.	5	4	3	2	1
I learned new information about the importance of nursing interventions for patients who have received appropriate shock therapy.	5	4	3	2	1
After listening to the presentation, I feel empowered to provide nursing interventions if I encounter a patient who seems to be affected by the emotional stress of their ICD.	5	4	3	2	1
After listening to the presentation, I am more apt to consider supporting a policy to help establish nursing interventions for this subset population which may include a protocol which allows nurses to initiates nursing and medicinal interventions for this population.	5	4	3	2	1

Comments:

Appendix D: Evaluation Feedback

Evaluation Form for Presentation
 Evaluation of Presentation
 "AICD: A Little Shocking to Your Emotional Health"
 Given by: Lindsay Olson

Please rate of your overall assessment of the presentation relative to the statements provided below:

5- Strongly Agree 4 - Agree 3 - Somewhat Disagree 2 - Disagree 1 - Strongly Disagree

The presentation was organized and was clearly presented.	5 (30)	4 (8)	3 (1)	2 (0)	1 (0)
The presenter was prepared and knowledgeable about the subject.	5 (33)	4 (6)	3 (0)	2 (0)	1 (0)
I can identify the clinical problems associated with patients who have received appropriate shock therapy from their AICD.	5 (30)	4 (9)	3 (0)	2 (0)	1 (0)
I learned new information about the importance of nursing interventions for patients who have received appropriate shock therapy.	5 (18)	4 (13)	3 (2)	2 (0)	1 (0)
After listening to the presentation, I feel empowered to provide nursing interventions if I encounter a patient who seems to be affected by the emotional stress of their ICD.	5 (18)	4 (11)	3 (0)	2 (0)	1 (0)
After listening to the presentation, I am more apt to consider supporting a policy to help establish nursing interventions for this subset population which may include a protocol which allows nurses to initiates nursing and medicinal interventions for this population.	5 (17)	4 (11)	3 (0)	2 (0)	1 (0)

Comments:

- A.) Lindsay appears very comfortable, confident, & professional presenting her knowledge based on clinical experience.
- B.) Are there brochures or other info we could offer to patients along with their ICD pamphlets we could give?
- C.) Great presentation. I really appreciate learning more about more support groups for these patients.

- D.) Very informative!
- E.) Excellent preparations done for presentation! Really enjoyed presentation. Very interesting about "phantom shocks" and reasoning behind the incidence of them.
- F.) Great presentation! Thanks!
- G.) This has given me more info on emotional impact on patients and will be more mindful of that and provide info and help as needed.
- H.) Very nice presentation. As an ICU nurse, it was very helpful to hear information on AICDs and what patients go through. Thank you.
- I.) You did a very nice presentation. Thanks so much!! You are a very knowledgeable RN. I would enjoy learning more from you.
- J.) Excellent! Very informative.
- K.) Great presentation Lindsay! Very informative.
- L.) Well prepared and researched.
- M.) Pre-counseling / psych screening above PHQ-9 may be beneficial before receiving an ICD. They seem (MDs) to herd the patients through and not discuss the emotional aspects with them.
- N.) She had one hour to present but was finished in 35 minutes.
- O.) Went through presentation a little fast. Didn't have question/answer time.
- 1.) Print on screen & handouts too small. Difficult to focus on material that is - too hard to read.
 - 2.) Step up to the mike please! Standing at the edge of the podium makes your voice often fall off.
 - 3.) Great material, but too hard to follow due to above points.