Psychological well-being following cardiac surgery

Anxiety and depression

Andleg líðan eftir hjartaaðgerðir

Kvíði og þunglyndi sjúklinga eftir aðgerð

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Föður mínum, Guðmundi Guðmundssyni þakka ég fyrir yfirlesturinn á rigerðinni og hagnýt ráð við smíði hennar. Fjölskyldu minni færi ég þakkir fyrir stuðninginn og Ingólfi Arnarsyni fyrir ómetanlegan stuðning og hvatningu. Síðast en ekki síst þakka ég Herdísi Sveinsdóttur fyrir að leiðbeina mér við skrifin.

Útdráttur

Erfitt bataferli bíður sjúklinga sem gangast undir opnar hjartaaðgerðir. Aðgerðin miðar að því að draga úr líkamlegum einkennum hjartasjúkdómsins og lengja og bæta líf viðkomandi einstaklings. Ritgerðin er fræðileg samantekt byggð á rannsóknum og fræðigreinum sem fengnar eru úr viðurkenndum gagnagrunnum. Aðal umfjöllunarefni eru kvíði og þunglyndi eftir opna hjartaskurðaðgerð. Kvíði og þunglyndi eru algeng vandamál hjá þessum sjúklingahópi og hafa víðtæk áhrif bæði á andlega og líkamlega líðan. Þunglyndi er oft vangreint og ómeðhöndlað vandamál hjá hjartasjúklingum og hefur verið tengt við erfiðara bataferli eftir aðgerðina. Mikilvægast af öllu er þó að sjúklingar sem þjást af þunglyndi hafa hærri dánartíðni en þeir sem ekki þjást af þessum sjúkdómi. Ritgerðin varpar ljósi á mikilvægi þess að bera kennsl á einkenni kvíða og þunglyndis hjá hjartaskurðsjúklingum og kosti þess að þeir fái viðeigandi meðferð við slíkum vandamálum.

Lykilorð: hjartaaðgerðir, kvíði, þunglyndi.

Abstract

Heart patients that undergo open cardiac surgery face a difficult recovery process. Surgery is necessary to eliminate or reduce symptoms of the underlying heart condition resulting in an improved and hopefully prolonged life. The paper is a literature review based on studies and research articles which were gathered from valued databases. The main emphasis is on anxiety and depression following open cardiac surgery. Anxiety and depression are common health problems in this specific patient group and have a significant negative impact on both physical and psychological well-being. Depression remains an undiagnosed and untreated problem and has been linked to a more difficult recovery process. It is a pressing concern that patients who suffer from depression have higher post surgical mortality rate. The focus of the paper is on demonstrating the importance of recognizing symptoms of anxiety and depression and why it is beneficial for the patient to receive appropriate treatment for these problems.

Keywords: open heart surgery, depression, anxiety.

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Introduction

In modern society health care professionals are faced with the challenge of providing high-quality patient care alongside major financial cutbacks. This paper focuses on patients who undergo cardiac surgery. Patients who have open heart surgery commonly suffer from anxiety and depression following the operation. Anxiety and depression are serious health problems and have negative impact on the recovery process, quality of life and psychological well-being. Depression following heart surgery hampers the recovery process and increases mortality rate compared to patients who do not suffer from depression following heart surgery.

The objective of this paper is to review information concerning depression and anxiety in patients who have a heart disease and undergo open heart surgery. The focus is on the impact of anxiety and depression on patient's daily life, the recovery process, psychological- and physical well-being and overall patient outcome. Other factors considered are pain, family support, social support, patient knowledge and educational needs, hospital stay, health related quality of life, sleep disturbances, mobility, function, mortality rate and impact on immediate family. The various negative consequences of anxiety and depression following heart surgery are worse patient prognosis, higher risk of readmission and increased mortality rate.

The paper aims to answer two questions. How common are anxiety and depression among patients who undergo open heart surgery? How do anxiety and depression affect psychological- and physical well-being. The main focus is on the psychological effects but physical factors will also be described shortly because it is hard to separate physical and psychological health in this particular patient group. Most common symptoms of anxiety and

depression are described and why it is important for nurses around the world to recognize those symptoms and react accordingly and in time so the patient can be diagnosed and receive proper treatment.

This paper is written in relation to a research performed in Iceland in 2007. This study was focused on the well-being of patients following heart- or lung surgery. In relation to that this work may be used as a basis or a literature review. In Iceland, open heart surgeries have been performed for over 20 years and in that time more than 4200 patients have undergone cardiac surgery (Kristjánsson, Guðmundsdóttir & Jónsson, 2007). Due to advances in medical sciences and cutbacks in cost in the health care system hospital stay after surgeries is getting shorter (Dracup et al., 2008; El Baz, Middel, van Dijk, Boonstra, & Reijneveld, 2009). For example in Iceland the mean hospital stay following heart- or lung surgery in 2007 was 9.7 days (Sveinsdóttir, 2008). This is obviously a very limited time health care professionals have to properly educate their patients and evaluate their mental health (Dracup et al., 2008; El Baz et al., 2009). The time spent on a surgical hospital ward following heart surgery usually focuses more on physical factors rather than psychological factors and emotional health can easily be overlooked during such short hospital stay.

Method

Data were gathered using valued databases containing evidence based and peer reviewed articles. The databases PubMed and Chinal were mostly used and only research articles were used as references. Articles were read and criticized and only reliable and trustworthy researches were used. The main focus was on gathering researches regarding cardiac surgery, depression, anxiety, quality of life and recovery process. Both qualitative and quantitative researches were used. Most used search terms were: CABG (coronary artery bypass graft), heart surgery, cardiac surgery, anxiety, depression and heart disease. Search was limited to a ten year period from 2000 to 2010 although a few older articles were used. Concepts were defined using the measuring instruments for anxiety and depression such as scales. A few recently published books were also used to define concepts when research articles did not give clear enough description. Otherwise this paper is based on recent research articles.

Description of concepts

Coronary artery disease

Coronary artery disease is a serious chronic life threatening disease. Coronary arteries are located in the heart and supply the heart muscle arterial blood rich with oxygen and nutrition. Coronary artery disease is a term used for many different conditions which all have in common obstructed blood flow through the coronary arteries. Coronary heart disease gets more common in the population with higher age. Life span of humans has become longer and consequently coronary heart disease has become a more common health problem among older people. Risk factors for coronary artery disease include: age, family history of coronary artery disease, diabetes, hypertension, tobacco use, sedentary lifestyle, dyslipidemia or abnormal blood cholesterol levels, obesity, stress and homocysteine (an amino acid synthesized in protein catabolism when methionine is converted to cystine).

Coronary artery disease can lead to acute coronary syndrome. Acute coronary syndrome is caused by atherosclerosis of the coronary arteries. Atherosclerosis is caused by lipids, collagen fibers and calcium under the endothelium of the coronary arteries resulting in narrowing of the space blood can flow through. Inflammation can occur and weaken the endothelium also referred to as fibrous cap. If the fibrous cap ruptures the blood coagulates and obstructs the artery and the heart muscle does not receive enough oxygen. This coagulation in the coronary arteries is also called coronary thrombosis. If nothing is done and the coronary thrombosis obstructs blood flow to the heart muscle for 20 minutes or longer it

can result in tissue death. When tissue death occurs it is called acute myocardial infarction (Monahan, Sand, Neighbors, Marek & Green, 2007).

Angina pectoris or chest pain is a symptom of coronary artery disease. Angina does not present in the same way in all individuals and the severity and location of the pain differs. Some individuals feel pain in the chest, others in arms, back, shoulder, arms, neck or even in the jaw. Most common description of angina is pain or pressure behind the sternum. Despite different location of the pain the cause of angina is originated in the heart muscle. Angina occurs when the heart muscle suffers lack of oxygen also referred to as ischemia. Angina is divided into two categories, stable angina and unstable angina. Stable angina is a predictable pain experienced by heart patients when they move or exercise. The blood supply does not satisfy the oxygen demand of the heart muscle. When the patient rests or stops exercising the angina disappears. When angina is stable the patient can control his pain with rest and using nitroglycerin tablets under the tongue. Unstable angina is however usually more intense than stable angina. The pain can arise at any time and even awaken the patient from sleep. An unstable angina is a sign that the arhterosclerotic plaque in coronary arteries has become unstable and increases the risk of rupture the fibrous cap and myocardial infarction (Urden, Stacy & Lough, 2008).

Heart surgery

Many types of heart surgeries exist and are performed to repair the heart or relieve symptoms. In this paper only two heart surgery types are taken to consideration. Coronary artery bypass graft (CABG) and heart valve replacement. Coronary artery bypass graft is a surgical treatment for obstruction in coronary arteries. The obstructed artery is replaced by a

graft which allows blood to bypass the obstructed portion of the artery. The myocardial tissue or heart tissue has as a result improved blood flow and increased oxygen distal to the lesion. CABG does not cure the underlying heart condition but can decrease angina and prevent myocardial infarcts and ischemia. Traditionally patients undergo a median sternotomy surgery where the heart activity is stopped, called cold cardioplegia. The blood circulation is meanwhile maintained by a cardiopulmonary bypass machine. Recent advances in cardiac surgery have led to less invasive techniques when only one coronary graft is needed. Today surgeons can also perform multiple CABGs without the cardiopulmonary bypass machine called “beating heart” or “off pump” procedures. Patients can have one or multiple grafts in the same surgery depending on the severity of their cardiac condition (Monahan et al., 2007). The goal of this surgery is to reduce or eliminate angina and other symptoms associated with coronary artery disease and reduce the risk of myocardial infarcts (Lee, 2009) and hopefully provide longer life.

Aortic heart valve replacement is a surgery performed when the heart valve is so damaged due to stenosis or calcification, that repair would not provide long term relief from symptoms. A wide variety of valves are available, prosthetic valves, human valves supported by an underlying frame and bioprostetic valves composed of valves from nonhuman species. Aortic heart valve replacement is performed by using a cardiopulmonary bypass machine and the patient’s health must be carefully considered before the operation because the procedure carries a significant operative mortality (Monahan et al., 2007). CABG and heart valve replacements are some times performed in the same surgery.

Anxiety and depression

In order to fully realize the impact anxiety and depression have on patients' psychological and physical health a short description of symptoms is needed. Anxiety is an individual experience. It is described as an emotion or energy and is difficult to observe or measure directly. A person who is anxious has feelings of helplessness and uncertainty. Anxiety is different from fear. Anxiety is an emotion without a specific object or cause whereas fear involves a specific object or a threat of some sort which the person can describe. Anxiety can be provoked by the unknown and precedes all new experiences. Fear involves the intellectual appraisal of a threatening stimulus but anxiety is the emotional response to that appraisal, so fear can cause anxiety in many cases.

Anxiety is divided into four stages. The first and mildest stage is classified as mild anxiety, and is associated with the tension of day-to-day living. The second stage is moderate anxiety where the emotion has an impact on a person's ability to grasp what is going on around it. The person only grasps selected areas and blocks out others. The individual can though, if directed, attend to other things. The third stage is described as severe anxiety. In this stage the person is fixed on specific details and does not think about anything else. Behavior is modified and the person tries to act in order to relieve the anxiety and it is harder to get someone in this state of mind to focus on something else. The final and most serious stage is panic. When in this stage the individual is terrified and feels unable to do things even if directed. Panic can be life threatening and involves disorganization of the personality. Panic is a terrifying and paralyzing state of mind which decreases ability to function and communicate effectively (Stuart, 2009).

The affects of anxiety are not necessarily entirely negative because mild to moderate anxiety can heighten senses and activity. Severe anxiety and panic usually always paralyze the ability to function correctly (Stuart, 2009). Symptoms of anxiety appear both psychologically and physically. The psychological symptoms are: worrying thoughts, irritability, sensitivity to noise, fearful anticipation, poor concentration, sensitivity to noise and restlessness. The physical symptoms are various and are seen in numerous organ systems: the gastrointestinal-, respiratory-, genitourinary-, neuromuscular and cardiovascular systems. In addition anxiety can also cause sleep disturbances (Gelder, Mayou & Geddes, 2006).

Depression is classified as an abnormality of mood. A person who is depressed may feel like ready to cry, has gloomy or pessimistic thoughts, even suicidal thoughts, and lacks interest and enjoyment. A common reaction to acute or serious illness is anxiety which may be followed by depression. Depressive disorder may follow traumatic experiences and symptoms are often overlooked by health care providers. Symptoms of depression are both psychological and physical. The psychological symptoms include feeling down, depressed, hopeless and having little interest or pleasure in doing things. The most common physical symptoms include among others fatigue and poor sleep (Gelder et al., 2006). A high incidence of depression is found among all patients hospitalized for medical illness. According to studies about one third of medical inpatients report mild or moderate symptoms of depression and up to one fourth in that group may have a depressive disease. Frequency and intensity are higher in severely ill patients.

It is a pressing concern that depression is largely untreated because symptoms are often overlooked by health care workers. Unfortunately one only third of anxious or depressed patients seeks appropriate professional help is diagnosed correctly and receive proper

treatment. Certain medical conditions have been linked to higher rate of depression and cardiac disease is one of those conditions (Stuart, 2009).

Results

Anxiety and depression in association with open heart surgery

When patients undergo a cardiac surgery they experience a transition in life. Majority of patients who have an open heart surgery suffer from depressed mood at some point before the surgery or during the recovery process afterwards. The depressed mood affects their well-being in the long term (Karlsson, Lidell, & Johansson, 2008). It is a great concern that patients who show symptoms of depression after coronary artery bypass surgery have higher mortality rate than those who do not suffer from depression. This includes all three levels of depression, mild, moderate and severe depression (Blumenthal et al., 2003).

Measuring anxiety and depression

Anxiety and depression can be measured by several means. For example interviews can be performed by a professional health care worker or the patient answers a self report question form regarding factors associated with depression and anxiety. A common method is using standardized scales. Scales are based on scientific evidence and tested before they are considered reliable. They ensure that researches can be repeated by others if desired and provide structure and accuracy in measurements. In this paper the results regarding anxiety and depression are defined by the measuring instruments. The instruments are used to determine if anxiety or depression are present and the severity of those conditions. Scales can be in the form of questionnaires which the patients answer themselves or as in some researches an interviewer uses a scale and asks the patient direct questions or uses the scale as a basis for a more loose structured interview.

All scales will not be out listed in detail but the most reliable and frequently used scales will be shortly described. They are: the Hospital Anxiety and Depression Scale (HADS), the Center for Epidemiological Studies-Depression questionnaire (CES-D), the Depression Anxiety Stress Scale (DASS) and the Geriatric Depression Scale (GDS). The scales are shortly described in order to give the reader insight into the research methods when depression and anxiety are measured.

HADS is a self report questionnaire. The patient answers 14 questions regarding depression and anxiety. 7 questions relate to depression and 7 to anxiety. The questions have multiple-choice answers and 4 response options. The response options give scores ranging from 0-3. When the questionnaire is completed the total score is calculated. A score of 7 or less indicates no anxiety or depression. 8-10 indicates doubtful cases of anxiety or depression. Patients who score 11 or higher definitely suffer from anxiety or depression. The highest available score is 21 (Ivarsson, Larsson, Luhrs, & Sjoberg, 2005).

CES-D is a 20-item questionnaire commonly used to measure depression. This scale is also a self report instrument. The questionnaire has multiple answer questions with a four point rating scale. The respondent specifies his or her level of agreement to a statement. For example “I was bothered by things that usually don’t bother me”. A total score of 16-26 suggests mild depression and a score of 27 or higher is strong indicator for moderate to severe depression (Blumenthal et al., 2003; Contrada et al., 2008).

DASS is like HADS and CES-D a self report scale. It is a 42 item instrument which measures anxiety, depression and stress. The questions are in form of statements and the respondent rates on a four point scale whether he or she agrees with it or not. The scale is

divided into three sections and measures anxiety, depression and stress as individual factors. Higher score in each section indicates higher level of anxiety, depression or stress (P. J. Tully, Baker, Turnbull, Winefield, & Knight, 2009; P. J. Tully, Baker, Turnbull, & Winefield, 2008).

GDS is a scale used to screen for depression. The scale contains 15 questions which the respondent answers with “yes” or “no” and the points range from 0 - 15. A score of 5 or higher indicates that this person should be assessed for depression (Sorensen & Wang, 2009). This scale does not define whether the patient is depressed or not but it is short, easy to use and can identify people who should be evaluated for depression.

Psychological symptoms of anxiety and depression in surgical heart patients

Depression may develop after a cardiac surgery or be a preexisting condition. Depression is also a common side effect of some cardiac medications such as beta-blockers. Age does not seem to be an indicator for depression following surgery. (Sorensen & Wang, 2009; P. J. Tully et al., 2008). Depression affects 12-52 % of patients who undergo open heart surgery. Anxiety is also a common health problem in this particular patient group. 15-45,5% suffer from anxiety at some point pre- or postoperatively (Blumenthal et al., 2003; Edell-Gustafsson & Hetta, 2001; Ivarsson et al., 2005; Karlsson et al., 2008; Sorensen & Wang, 2009; P. J. Tully et al., 2008; Wulsin et al., 2005). These problems have various negative effects on the outcome of heart patients following cardiac surgery. In a three year follow up after open heart surgery 52% of patients reported depression at some point (Karlsson et al., 2008). One study reported higher prevalence of anxiety than other studies or 72% one year after heart surgery (Edell-Gustafsson & Hetta, 2001).

Depressive symptoms and emotional distress is more common and more severe among women than men. Risk factors for anxiety and depression following surgery are being female, low functional status before surgery, lower education level, higher trait anger, younger in age and tobacco use (Contrada et al., 2008; Sorensen & Wang, 2009; Wulsin et al., 2005). One study shows different results regarding depressive symptoms. In this study there is no statistical difference in age, gender, myocardial infarction, body weight, complication following heart surgery or living situation when examining depressed and none depressed patients (Karlsson et al., 2008).

If patients show symptoms of depression few months after surgery it is highly likely that they will continue to be depressed one or two years later. 35% of patients who are depressed 5 weeks after surgery are still depressed 3 years later (Karlsson et al., 2008). Majority of patients who show symptoms of depression suffer from mild to moderate depressive mood but severe symptoms are fortunately less common (Karlsson et al., 2008). After the surgery patients state their happiness about being alive but simutaniously patients who suffer from depression experience the difficult strive to overcome fear of death. Fortunately not all patients get depressed after surgery and their lives continue almost in the same way as before the surgery. The none depressed patients are focused on the future and express optimism (Karlsson et al., 2008).

Health care professionals are aware of the severity of having a heart disease and undergoing a surgical treatment. They also realize that these factors make patients more open to life style changes. If the patient fails to make the life style changes it can trigger anxiety and uneasy feelings. The patient becomes anxious because of his newly acquired knowledge of risk factors (Karlsson, Mattsson, Johansson, & Lidell, 2010). Patients who achieve life

style changes strive to stay active in order to counteract new cardiac problems. Even after making the necessary changes to their lifestyle patients are still worried about their heart. They are fragile after the surgery and feel the burden of their life threatening heart disease. This clearly shows that life style changes alone do not prevent patients from feeling anxious (Karlsson et al., 2008).

Physical symptoms of anxiety and depression in surgical heart patients

Most heart surgeries on adults are elective and white males are in majority (Contrada et al., 2008). The physical symptoms of anxiety vary from person to person and are found in various organ systems. Gastrointestinal symptoms are dry mouth, difficulty in swallowing, epigastric discomfort, excessive wind and frequent or loose stool. Respiratory symptoms include constriction in the chest, difficulty inhaling and overbreathing. Cardiovascular symptoms include palpations, discomfort in chest and awareness of missed heart beats. Genitourinary symptoms are frequent or urgent urination, failure of erection, menstrual discomfort and amenorrhea (no menstrual periods). Neuromuscular symptoms include tremor, prickling sensations, tinnitus (buzzing sound in ears), dizziness, headache and aching muscles. Sleep disturbances may also occur. Prolonged anxiety can lead to depression and the additional physical symptoms of depression include sad appearance, psychomotor retardation, early wakening and other sleep disturbances, reduced appetite, weight loss and reduced sexual drive (Gelder et al., 2006).

Patients with one or more comorbid condition have greater depression rate after the operation than those who do not suffer from comorbid diseases. A comorbid disease is when the patient has an additional independently existing chronic disease. People who suffer from

depression prior the surgery tend to have poorer functional status and severer depression postoperative. Greater postoperative depression is strongly linked to poorer function. On the other hand, individuals with better function prior to surgery have better mental health and functional status after operation. Patient age does not seem to be related to functional status like gender. Female patients have lower function compared with men both preoperatively and postoperatively. Women also seem to be more depressed both before and after their surgery (Sorensen & Wang, 2009). This information strongly suggests that good mental health before heart surgery is beneficial for the patient both psychologically and physically. Depression has significant negative effects on patients' general mood and therefore it is likely that it also affects their view on the quality of life (P. J. Tully et al., 2009).

Stress reduces ability to perform the tasks needed to fulfill the demands of social roles (P. J. Tully et al., 2009). People who undergo open heart surgery may experience other physical symptoms directly linked to the operation such as: pain, diarrhea, constipation, nausea, vomiting, dysuria, urinary incontinence, problems with sexual activity, impaired movement, loss of appetite, trouble with food intake and shortness of breath (Sveinsdóttir, 2008). After heart surgery patients most commonly experience nausea, pain and difficulties with mobility and functioning (Rankinen et al., 2007).

Bodily pain is not associated with poorer psychological status six months after coronary artery bypass surgery but pain symptoms can interrupt sleep. Palpitation and respiratory problems can also disturb the patient at night which increases negative emotions and reduces physical ability (Edell-Gustafsson & Hetta, 2001; P. J. Tully et al., 2009). When health care workers are asked how they see the patient they describe the patient as guarded or stiff in movements. (Karlsson et al., 2010). Anxiety and depression have been linked to higher risk of

readmission following open heart surgery and most importantly, depressed patients have higher mortality rate than those who do not suffer from depression (P. J. Tully et al., 2008).

From the perspective of health care professionals the patient who is undergoing open heart surgery has strong contradictory and volatile feelings. The patient's self-image is undermined and he or she could start to call life into question. This refers to patients having coronary artery bypass surgery as well as heart valve replacement. Health care workers also feel that younger patients diagnosed with a heart disease and need surgery have more traumatizing experience than older patients, especially if the period between diagnosis and the surgery is short. Hospital workers find it easier to recognize signs of anxiety compared to depressed mood. In some patients signs of depression are not identified until late in the recovery process when a few months have passed since the surgery (Karlsson et al., 2010).

Hospital stay

According to the literature hospital stay after open heart surgery is around one week. In Iceland the mean hospital stay is 9.7 days according to a recent research (Sveinsdóttir, 2008). If patients are female, older, unmarried, less educated, higher in depressive symptoms, lower in trait anger and feel like they have little social support, they have a tendency to dwell longer in a hospital ward than other patients. Physical factors like length of surgery, history of atrial fibrillation before or after operation and other complications, which will not be described in detail, also lead to longer hospital stay. Patients who show depressive symptoms in the recovery process tend to have longer hospital stay than others. In conclusion the recovery process after heart surgery is reflected in length of hospital stay (Contrada et al., 2008).

Patients who report anxiety to hospital staff often state that they want to stay longer at the hospital because they feel secure there (Karlsson et al., 2010).

Depression affects quality of life and can also increase risk of hospital readmission. Patients who are readmitted to hospital within six months from coronary artery bypass surgery are more anxious prior to the surgery and have higher depression score compared to patients who do not need readmission. Around one third or 32% need readmission within six months. The reasons for readmission are related to the heart surgery, infection, respiratory complications and pleuritic chest pain, arrhythmia, angina and congestive heart failure. Although increased stress level decreases the patient's quality of life it is surprisingly not linked to higher mortality rate like depression and lowers the readmission risk (P. J. Tully et al., 2008).

Clinical pathways in hospitals are multidisciplinary management plans which usually shorten hospital stay and make the work of hospital personnel more efficient and thus improving outcomes and decreasing cost. Clinical pathways are appealing because they are cost effective, reduce complications and shorten the length of hospital stay. The downside is that patients who have a CABG surgery improve less in health related quality of life than those who receive a conventional care plan. Clinical pathways are often designed for the ideal patient and do not consider comorbidities or other conditions the patient may have and do not include complications (El Baz et al., 2009). For older adults the length of stay is around one week (Contrada et al., 2008; Sorensen & Wang, 2009). Shorter hospital stay is a result of medical advances and less invasive surgical techniques e.g. in harvesting saphenous vein grafts. Older patients do not necessarily stay longer in the hospital than younger patients (Sorensen & Wang, 2009)

Quality of life

One goal of the coronary artery bypass graft surgery is hopefully prolong life, relive symptoms and therefore increase the quality of the patient's life. Health related quality of life is a term used for the individuals physical functioning, role functioning, emotional functioning, mental health, vitality, social functioning, bodily pain and general health (Lee, 2009; Rantanen et al., 2009). Health related quality of life after coronary artery bypass surgery is divided into physical health, emotional well being, symptoms of the heart disease and social support (Lee, 2009). Quality of life is measured using similar scales as in measuring anxiety and depression. The FS-36 scale is an example of measuring instrument for quality of life. The factors these scales include are: the individual's physical functioning, role functioning, emotional functioning, mental health, vitality, social functioning, bodily pain and general health (El Baz et al., 2009). A closer look at these factors would include negative effects on moving, seeing, hearing, sleeping, eating, speech, elimination, usual activities, mental function, discomfort and symptoms, depression, distress, vitality and sexual activity (Edell-Gustafsson & Hetta, 2001; Rantanen et al., 2009).

Five years after a CABG surgery anxiety and depression are still present and reducing patients' quality of life. Physical factors such as age, comorbid illness, myocardial infarcts and diet account for decreased physical activity. In patient follow up five years after the operation physical factors account for twenty nine percent of variance and anxiety and depression account for forty percent of mental variance (Lee, 2009). Most patients who have cardiac surgery are older than 60 years and of them have a family member with a chronic disease. Both mental- and physical health has an influence on how patients perceive health

related quality of life. Emotional distress one year after surgery leads to poorer quality of life (Rantanen et al., 2009; P. J. Tully et al., 2009).

Patient's family and support

Cardiac surgery has great impact on the patient and the immediate family. Patients and their families report lowest quality of life one month after the surgery but fortunately it improves during follow-up. Many family members of surgical heart patients suffer from chronic disease and the patient experiences more improvement in quality of life than his or her family (Rantanen et al., 2009). Family members are also likely to suffer from, anxiety, depression, irritability and sleeping disorders (Bengtson, Karlsson, Währborg, Hjalmarson, & Herlitz, 1996).

Patients receive support from nurses on the hospital ward. Most of them also receive assistance and support from their families and significant others, e.g. spouse. Patients who receive more aid report better quality of life than those who receive less. Family members are sometimes in need of support too. Spouses who require more attention from nurses during the patients hospital stay report poorer quality of life than those who need less attention. Significant others who are in the youngest age group had best reported health related quality of life (Rantanen et al., 2009). Relatives of younger patients pose questions to hospital workers more frequently and seem to be more worried than families of older patients. Relatives of patients who have an open heart surgery experience a great threat to their family life. Health care professionals perceive open heart surgery as a stressful situation both for the patient and his or her family (Karlsson et al., 2010).

More social support does not reduce depression. Patients who report a large number of supporters are not less depressed than those who have few supporting persons. No difference is found in gender regarding social support. Ten percent of older adults are socially isolated after the surgery that is having three or fewer persons in their social network (Sorensen & Wang, 2009). Married patients report receiving greater support than single patients. In contrast to previous finding social support is different in gender because in this study women tend to have social support than men. Religious patients also score higher on social support. People who receive more support tend to be more optimistic than those who have less support (Contrada et al., 2008).

Patient knowledge and education

46% of people who have been diagnosed with an ischemic heart disease generally have insufficient knowledge about their condition and the risk for a future acute myocardial infarct (AMI). 57% consider themselves at high risk for a future AMI but interestingly with one exception. Namely, patients who have undergone a coronary artery bypass surgery inappropriately feel that they are less vulnerable for future AMI than people of their own age who have not been diagnosed with a heart disease. The patients who are best educated about their condition are women and younger people. Men are more confident than women about recognizing the symptoms of AMI in others or themselves despite the fact that they are less informed about the symptoms (Dracup et al., 2008).

Patients want to be able to take part in making decisions about their treatment. In order to do so they must have enough knowledge about available treatments and the expected outcomes from those interventions. Nurses are in key position to provide information to their

patients. Patients who have heart surgery expect more education at hospital admission than they actually receive and nurses seem to be unaware about patients' educational expectations. In particular younger patients, female patients and patients with higher level of education report not receiving enough information and therefore require more attention from hospital staff regarding patient education. This group received less information than they expected on financial, social, ethical, experiential, functional and bio-physical factors (Rankinen et al., 2007).

An interesting study examined directly if patients wanted to know about common and rare complications and the mortality risk of cardiac surgeries. In the preparatory work of this particular study cardiac surgeons were worried about the patients receiving too much information about their surgery. They assumed that the education was too detailed and would have negative effects on the patient and possibly damage the relationship between the surgeon and the patient. After the study the surgeons realized they had much better prepared patients and the negative speculations about the extended written pre-operative information vanished. Patients receiving extended information are more pleased and satisfied and are better prepared to discuss alternative treatments with their surgeon than patients who are less educated about their operation (Ivarsson et al., 2005).

Knowledge about post operational symptoms such as nausea, pain and difficulties with mobility and functioning, is very important for the recovery process. A patient who knows what to expect is better prepared for discharge from hospital. Surgical heart patients are also interested in ethical issues such as their rights and the different responsibility of staff members during their hospital stay. To meet educational needs nurses can emphasize more on these factors when educating the patient and immediate family (Rankinen et al., 2007).

Discussion

Anxiety and depression are largely untreated health problems among patients who undergo an open heart surgery. It is a great concern that majority of patients suffer from anxiety or depression at some point before or after the surgery because of the negative effects on emotional and physical health. The severity of depression does not matter because mild, moderate and severe depression has been proved to twofold the risk of readmission and increase mortality. The risk of readmission is 32% and if depression can double that risk it should be considered a grave health problem (Blumenthal et al., 2003; Karlsson et al., 2008; P. J. Tully et al., 2008) (P. J. Tully et al., 2008).

The instruments used to measure depression should not be looked at as diagnostic tools. If patient scores high on a depression or anxiety scale it is merely an indicator of the need to assess the patient further. The patient needs to be evaluated by a doctor or other professional health care provider and if he or she is diagnosed with depression or anxiety further intervention or treatment is needed. Screening tools such as the HADS scale can be very useful in detecting patients suffering from emotional distress. The HADS scale is an evidence based measuring instrument and has been proved to be reliable in measuring anxiety and depression in surgical heart patients (El Baz et al., 2009; Ivarsson et al., 2005; Sveinsdóttir, 2008).

Depression is some times a preexisting condition before surgery but can also arise afterwards. Heart patients are at high risk of suffering from anxiety and depression and studies show that 12-52% of patients meet the criteria for depression. The numbers for anxiety are even higher because studies report 15-75% of patients being anxious at some point (Blumenthal et al., 2003; Edell-Gustafsson & Hetta, 2001; Ivarsson et al., 2005; Karlsson et

al., 2008; Sorensen & Wang, 2009; P. J. Tully et al., 2008; Wulsin et al., 2005). Majority of patients who show symptoms of depression suffer from mild to moderate depressive mood but severe symptoms are fortunately less common (Karlsson et al., 2008). Even though the symptoms are classified as mild or moderate the effects on the patient and over all outcome is still a great concern.

Anxiety can develop into depression and should always be taken seriously. The negative effects of these emotional problems cause the patient significant discomfort and can lead to hospital readmission and increase risk of death. Today health care systems and hospitals are facing major cutbacks and preventing or treating anxiety and depression could possibly reduce financial expenses and most of all provide better life for the patient. If health care workers are more alert and observing to signs of depression and anxiety this goal could be achieved. In order to do so hospital workers must recognize both psychological and physical symptoms and identify patients at risk.

Some patients only show symptoms of anxiety and depression the first few weeks after the surgery but others continue to be depressed over extended period of time, even months or years after the surgical treatment. Those patients do not always report their depression and seek appropriate help from health care workers (Karlsson et al., 2008). A long term psychological follow up of surgical heart patients could profit the patient and the health care system because readmissions and complications are expensive. Underestimating depressive symptoms and anxiety in follow-up could have serious effects on the patient (Lee, 2009). If comorbidies, depression, low function and other risk factors can be identified promptly, the patient outcome can be improved significantly (Sorensen & Wang, 2009).

Hospital stay has become shorter due to advances in health sciences. After open heart surgery patients usually stay at the hospital for around 7 days. For some reason the length of stay in Iceland is a little longer or 9.7 days. It is interesting that occurrence of anxiety and depression following open heart surgery is a little lower than in the literature. Only 10 - 17.3% of patients report anxiety and 9.5 - 11.9% report depression (Sveinsdóttir, 2008). The cause of these low numbers are debatable and could be a result of longer hospital stay, good follow up or possibly because of the tight bonds of Icelandic families. Whatever the cause might be it is none the less a pleasant result.

Clinical pathways are used to cut back cost in hospitals. These pathways do however not suit surgical heart patients (El Baz et al., 2009). Comorbidities are common in this patient group and heart patients need an individualized care plan. Clinical pathways are often made with the ideal patient in mind and do not include complications. Hospitals should include psychological factors into their care plan in order to provide the best possible care for patients and improve their outcome.

Quality of life is a vast concept and can not be fully described in this paper. One goal of an open heart surgery is to improve and hopefully prolong life (Lee, 2009; Rantanen et al., 2009). Depression, present pre or post operative, it is a significant indicator for reduced quality of life after the surgery (P. J. Tully et al., 2009). Quality of life is threatened when anxiety and depression are present. Symptoms of anxiety and depression also affect how the patient perceives quality of life and high emotional distress has been proved to decrease quality of life (Rantanen et al., 2009; P. J. Tully et al., 2009). Therefore it can be assumed that patients who are in good emotional balance experience greater quality of life. Depression and anxiety are common complications following heart surgery and can have various negative

effects on the patient. This highlights the need to develop suitable interventions for anxiety and depression both before and after a heart surgery (P. J. Tully et al., 2008).

The surgery does not only impact the life of patients but also the family. Family members are usually the main source of support and care after the patient is discharged from the hospital. All relatives need special attention even though younger family members express worries more frequently older ones. Younger relatives report better quality of life than older family members (Karlsson et al., 2010). The family should always be taken into consideration in the patient's care plan because the family life is threatened when someone has an open heart surgery. Nurses on hospital wards should aim to identify families in need of special attention and provide support and point out appropriate solutions after discharge.

Spouses who require more attention from nurses during the patients hospital stay report poorer quality of life than those who need less attention. Significant others who are in the youngest age group had best reported health related quality of life (Rantanen et al., 2009). It is possible that spouses who need more attention are feeling worse and that could be a good indicator for nurses when evaluating if the patient's family is in need of support.

Because hospital stay after surgeries is getting shorter and shorter nurses and other hospital workers need to be well informed about the educational needs of their patients. This, of course provides a great challenge for nurses and other hospital caregivers. Well informed staff about the needs of their patients can improve the recovery process and lead to a better patient outcome. Unfortunately, patients are often badly informed about their condition (Dracup et al., 2008). Educating the patient is beneficial both for health care workers and the patient. A well prepared patient knows what to expect and is better qualified to discuss his or

her treatment with health care providers (Ivarsson et al., 2005). If the patient knows what symptoms are commonly present following surgery the recovery process might become little easier. Knowledge about nausea, pain and difficulties with function and mobility make the patient better prepared for hospital discharge (Rankinen et al., 2007).

Hospital workers tend to think they know which information is good or bad for the patient and provide only information they think is beneficial for the patient (Ivarsson et al., 2005). Patients want to be well informed and be able to take part in making decisions about their treatment. Studies have shown that patient expect more information and education than they actually receive (Rankinen et al., 2007). With the exception of pharmaceutical intervention, nurses are responsible for helping their patients adapting, satisfying their needs, enhancing their knowledge and supporting their well-being and health (Edell-Gustafsson & Hetta, 2001).

Concluding remarks

Hopefully this literature review of the various negative effects of anxiety and depression has emphasized the great need to properly recognize, diagnose and treat these problems. Nurses are in key position to help surgical heart patients both in and out of hospitals. Proper interventions can lead to better patient outcome and possibly save large amounts of money in the health care system. In the future patient follow-up after open heart surgery should focus on psychological and emotional health as well as physical health. There is a great need for individualized interventions regarding anxiety and depression. Untreated emotional distress can have serious consequences and nurses can help identifying these problems and provide treatment. Anxiety and depression concerns nurses working with surgical heart patients and should always be taken seriously. Future studies should focus on developing interventions and care plans for these patients.

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