2007

The Role of Occupational Therapy in the Secondary Prevention of Transient Ischemic Attacks

Alan Hodenfield  
*University of North Dakota*

Amy Shulstad  
*University of North Dakota*

Follow this and additional works at: https://commons.und.edu/ot-grad

Part of the [Occupational Therapy Commons](https://commons.und.edu/ot-grad)

**Recommended Citation**


https://commons.und.edu/ot-grad/231

This Scholarly Project is brought to you for free and open access by the Department of Occupational Therapy at UND Scholarly Commons. It has been accepted for inclusion in Occupational Therapy Capstones by an authorized administrator of UND Scholarly Commons. For more information, please contact zeineb.yousif@library.und.edu.
The Role of Occupational Therapy in the Secondary Prevention of Transient Ischemic Attacks

by

Alan Hodenfield & Amy Shulstad
Advisor: Dr. Michael Atkinson

A Scholarly Project
Submitted to the Occupational Therapy Department
of the
University of North Dakota
In partial fulfillment of the requirements for the degree of
Master’s of Occupational Therapy

Grand Forks, North Dakota
May 12, 2007
This Scholarly Project paper, submitted by Alan Hodenfield and Amy Shulstad in partial fulfillment of the requirement for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

Faculty Advisor

Date: 3/27/07
PERMISSION

Title: The Role of Occupational Therapy in the Secondary Prevention of Transient Ischemic Attacks

Department: Occupational Therapy

Degree: Master's of Occupational Therapy

In presenting this Scholarly Project in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, we agree that the Department of Occupational Therapy shall make it freely available for inspection. We further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised our work or, in his absence, by the Chairperson of the Department. It is understood that any copying of publication or other use of this Scholarly Project or part thereof for financial gain shall not be allowed without our written permission. It is also understood that due recognition shall be given to use and the University of North Dakota in any scholarly use which may be made of any material in our Scholarly Project.

Signature Alan Holyfield Date 5/12/07

Signature Amy Shulstad Date 5/12/07
# TABLE OF CONTENTS

ABSTRACT .......................................................................................................................... v

CHAPTER

I. INTRODUCTION .............................................................................................................. 1

II. GLOSSARY OF TERMS ................................................................................................... 6

III. LITERATURE REVIEW .................................................................................................. 7

   Pathophysiology of TIA .................................................................................................. 7

   Delayed Treatment of TIA ............................................................................................... 9

   TIA and Depression ....................................................................................................... 10

   TIA and Risk Factors: Tobacco Use .............................................................................. 11

   TIA and Risk Factors: Alcohol Consumption .............................................................. 13

   TIA and Risk Factors: Lifestyle Changes ...................................................................... 14

   Conclusions: A Need for After-care or Other Programs ............................................. 18

IV. METHODOLOGY ........................................................................................................... 19

V. PRODUCT ......................................................................................................................... 21

VI. SUMMARY ...................................................................................................................... 60

REFERENCES ..................................................................................................................... 63
ABSTRACT

A transient ischemic attack (TIA) is a condition in which an individual experiences an “episode of temporary and focal neurological dysfunction of rapid onset, caused by cerebral circulatory failure and lasting no more than 24 hours” (Shah, Cooper & Lyons, 1992, p. 358-359). Even though a TIA is temporary and leaves no permanent effects, it's far from an irrelevant event. About one in three people who have a TIA eventually have a stroke, with about half occurring during the year after the TIA (Mayo, 2006). A TIA can serve as both a warning and an opportunity: a warning of an imminent stroke and an opportunity to take steps to prevent it. There is a need for individuals who have experienced a TIA to receive follow up treatments aimed at educational information and preventative interventions (Goldstein, Bian, Samsa, Bonito, Lux & Matchar, 2006).

A comprehensive literature review was conducted by utilizing credible journal articles, textbooks and scholarly internet websites on the pathophysiology of TIAs, common risk factors, the delayed treatment sought after a TIA, depression related symptoms, the risk factors for TIA, possible treatment interventions and the role of occupational therapy. Furthermore, theoretical frameworks of occupational therapy were explored. It was determined that Occupational Adaptation model (Kramer, Hinojosa, & Royeen, 2003) was the most appropriate theory to guide this scholarly project.

Through this process, it was determined that occupational therapists need to be informed about this undeveloped area of practice and seek out additional education on the various aspect of TIAs and the role of occupational therapy to better serve this
population. An educational Microsoft PowerPoint presentation was developed for occupational therapists in order to provide them with information regarding TIA and the importance of secondary prevention in the form of lifestyle modifications and mental health management. The PowerPoint presentation and supplemental lecture notes pertain to the pathophysiology of TIA, individual risk factors, the settings for occupational therapy services, the role of the therapist and treatment interventions. It is intended to be utilized at healthcare facilities, state occupational therapy associations as well as national organizations.
CHAPTER I

INTRODUCTION

Imagine you are busy shopping at your local grocery store when suddenly you lose some of the feeling in your right arm and leg. You reach for some shelves to steady yourself and try to talk to fellow shoppers. However, your speech is distorted and they cannot understand what you are saying. Then, after a few minutes, your signs and symptoms completely vanish and you go on with your shopping task. You are utterly confused by the recent events and debate whether or not to seek medical treatment.

It is possible that the event you have just experienced was a transient ischemic attack (TIA) or mini-stroke, and ignoring this temporary neurological event may have serious consequences regarding your future health. A TIA is a temporary loss of blood supply to the brain caused by an occlusion in one of the cerebral arteries. The resulting symptoms last no longer than 24 hours; however, the majority of individuals (90%) experience episodes that occur between fifteen and thirty minutes of duration (Shah, Cooper & Lyons, 1992). Even though a TIA is temporary and leaves no permanent effects, it's far from an irrelevant event. About one in three people who have a TIA eventually have a stroke, with about half occurring during the year after the TIA (Mayo, 2006). A TIA can serve as both a warning and an opportunity: a warning of an imminent stroke and an opportunity to take steps to prevent it.

The issue with these types of situations is that approximately half of clients who experience a TIA fail to seek medical treatment. In the cases where medical attention is
sought, clients are either discharged home with minimal knowledge about the event or hospitalized for a short period of time, both of which the provision of follow up treatment is scarce. Furthermore, the specialized TIA clinics in the United States tend to focus on pharmacological treatments with minimal attention drawn to lifestyle modification and mental health. Within these TIA clinics, there are not any known occupational therapists on the treatment teams. Occupational therapists would be an asset to these multidisciplinary teams as they have the skills to assist individuals in making lifestyle modifications and handling mental health issues to improve an individual's overall quality of life and reduce their risk of stroke.

In addition, although TIAs are not a new concept, the need for rapid assessment and follow-up treatment has shown to be of great need. Occupational therapists must promote their services to other health care professionals for numerous reasons. Through education to others, these professionals will gain a greater understanding of TIAs as well as the need for urgent care and assist with the reduction of stroke risk. Furthermore, by educating other health care professionals that occupational therapy is a needed asset to a TIA treatment team; clients who seek out treatment after a TIA will be receiving the best quality client care as they will receive all aspects of treatment.

Another population which is important for occupational therapist to educate is the public. Many individuals who have experienced a TIA often delay in seeking immediate medical attention or are discharged to their home without guidelines and treatment protocols for the prevention of major stroke by their primary care physician. It is important to examine this issue because failing to engage individuals who have experienced a TIA in treatment programs results in an increase in the number of
individuals who suffer major stroke. This problem leads to rises in healthcare costs and increases morbidity and mortality in individuals. Therefore, educating this population regarding common symptoms of a TIA and the need for urgent care is extremely important. TIA’s are a warning event that provides an individual with the opportunity to prevent a future stroke (Coull, A.J., Lovett, P.M., & Rothwell, 2004).

"TIA's are warning episodes of temporary and focal neurological dysfunction of rapid onset, caused by cerebral circulatory failure and lasting no more than 24 hours” (Shah, Cooper & Lyons, 1992, p. 358-359). Most often an individual’s experience of a TIA evolves from no symptoms to maximum symptoms in less than five minutes. Although symptoms can last up to twenty four hours, 90% of individuals experience episodes that occur between fifteen and thirty minutes of duration. The most common symptoms of a TIA may include sudden weakness, numbness or paralysis on the face, arm or leg, typically on one side of the body, slurred speech or difficulty understanding others, sudden blindness in one or both eyes or double vision, as well as dizziness, loss of balance or loss of coordination. Individuals may have a single occurrence of a TIA or several occurrences over months of time (Shah, Cooper & Lyons, 1992). There is a body of literature which indicates the need for secondary preventative measures in the form of lifestyle modifications, mental health treatments and pharmacological means to reduce the risk of future stroke following a TIA. This literature is presented in Chapter II.

As further research is conducted on TIAs regarding urgent care and follow up services, it is essential for occupational therapist to seek out additional education services in order to provide their clients with optimal care. Through attending continuing educational courses, occupational therapist are able to further define their role within this
realm of care and increase their knowledge pertaining to secondary TIA prevention. Overall, continuing education is important for the occupational therapist, the individuals whom they serve and the occupation therapy profession as it is crucial to remain competent and advance in an ever-changing world. This scholarly project consisted of developing a continuing education product for occupational therapists regarding the secondary prevention of TIAs. This product is entitled *Secondary Transient Ischemic Attack Prevention: Continuing Education for Occupational Therapists* and is found in Chapter IV.

The model of Occupational Adaptation was utilized to guide the development of the continuing education module for occupational therapist for this scholarly project. This model consists of three constants: person, occupational environment and interaction. Another important aspect of this model is the adaptive response in which an individual is the agent for change. Within the adaptive response, the individuals assess his/her own experience regarding a topic which determines an individual’s level of relative mastery. Therefore by educating other occupational therapists, they will increase their knowledge regarding secondary prevention of TIAs and in return gain relative mastery. In addition, those occupational therapists will be able to assist their clients who have experienced a TIA in preventing future stroke. Occupational therapists can use occupational adaptation as their approach to treating these clients as well by allowing clients to be their own agents of change. The occupational therapist can assist the client in finding activities that have role relevance and personal meaning to evoke their own adaptive capacity.

The following chapters are included within this scholarly project: the extensive literature review, the methodology, the educational Microsoft PowerPoint product
presentation and a summary of the findings and areas for further research which would be beneficial to occupational therapy and the secondary treatment of TIA's. Furthermore, a glossary of terms has been included at the conclusion of this chapter. This is provided in order to supply the reader with a reference for potentially unfamiliar terms throughout this scholarly project. The literature review is provided in the following chapter.
GLOSSARY OF TERMS

**Cerebral:** of or relating to the brain or the intellect (Merriam-Webster's, 2003, p. 202).

**Cessation:** to stop an action (Merriam-Webster's, 2003, p. 203).

**Hypertension:** abnormally high blood pressure and especially arterially blood pressure (Merriam-Webster's, 2003, p. 611).

**Ischemia:** deficient supply of blood to a body part (as the heart or brain) that is due to obstruction of the inflow of arterial blood (Merriam-Webster's, 2003, p. 663).

**Morbidity:** the state of being affected by or induced by disease (Merriam-Webster's, 2003, p. 807).

**Mortality:** the state of being subject to death (Merriam-Webster's, 2003, p. 808).

**Neurological:** the scientific study of the nervous system especially in respect to its structure, functions and abnormalities (Merriam-Webster's, 2003, p. 833).

**Pathophysiology:** the physiology of abnormal states specifically the functional changes that accompany a particular syndrome or disease (Merriam-Webster's, 2003, p. 908).

**Pharmacological:** the science of drugs including their origin, composition, pharmacokinetics, therapeutic use and toxicology (Merriam-Webster's, 2003, p. 928).

**Stroke:** sudden diminution or loss of consciousness, sensation, and blood vessel of the brain (Merriam-Webster's, 2003, p. 1237).

**Transient:** passing especially quickly into and out of existence (Merriam-Webster's, 2003, p. 1328).
CHAPTER II
LITERATURE REVIEW

Each year in the United States 200,000 to 500,000 individuals experience a transient ischemic attack (TIA) (Hinkle, 2005). Those who survive a TIA have an increased risk of stroke occurrence which is a major source of mortality and morbidity. As many as one in every five patients suffer a permanent stroke within three months after experiencing a TIA; for over half of these patients the occurrence arrives much sooner (Krieger, 2005). The identification and modification of stroke risk factors can prevent long-term morbidity and mortality after a TIA. However, individuals who have experienced a TIA often delay in seeking immediate medical attention or are discharged to their home without guidelines and treatment protocols for the prevention of major stroke by their primary care physician. It is important to examine this issue because failing to engage individuals who have experienced a TIA in treatment programs results in an increase in the number of individuals who suffer major stroke. This problem leads to rises in healthcare costs and increases morbidity and mortality in individuals.

Pathophysiology of TIA

To understand the complications resulting from a TIA, it is important to have knowledge in the pathophysiology of this neurological deficit. “TIA’s are warning episodes of temporary and focal neurological dysfunction of rapid onset, caused by cerebral circulatory failure and lasting no more than 24 hours” (Shah, Cooper & Lyons, 1992, p. 358-359). The typical cerebral blood flow in humans supplies the brain with
approximately 50 to 60 mL/100 g of brain tissue per minute. When blood flow declines to 20 to 40 mL/100 g per minute, neurological dysfunction occurs. Permanent tissue damage occurs when flow is reduced to less than 10 to 15 mL/100 g per minute (Flemming, K.D., Brown, R.D., Petty, G.W., Huston, J., Kallmes, D.F., & Piepgras, D.G., 2004). Most often an individual’s experience of a TIA evolves from no symptoms to maximum symptoms in less than five minutes. Although symptoms can last up to twenty four hours, 90% of individuals experience episodes that occur between fifteen and thirty minutes of duration. Symptoms of a TIA may include sudden weakness, numbness or paralysis on the face, arm or leg, typically on one side of the body, slurred speech or difficulty understanding others, sudden blindness in one or both eyes or double vision, as well as dizziness, loss of balance or loss of coordination. Individuals may have a single occurrence of a TIA or several occurrences over months of time. “TIAs are categorized according to the vascular supply that is responsible for the resulting neurological deficit” (Shah, Cooper & Lyons, 1992, p. 359). In the event of a TIA, lack of blood flow may occur within the anterior or posterior circulation of the brain. Arteries in the anterior circulation include the carotid, middle and anterior cerebral arteries; posterior circulation is composed of the vertebrobasilar arterial system.

The signs and symptoms of an cerebral ischemia that involve the anterior circulation include: motor dysfunction of contralateral extremities (i.e. clumsiness, weakness or paralysis), loss of vision in the ipsilateral eye, homonymous hemianopia, aphasia, dysarthria, and sensory deficits of the contralateral extremities or face (Flemming, K.D., Brown, R.D., Petty, G.W., Huston, J., Kallmes, D.F., & Piepgras, D.G., 2004). More specifically, a carotid artery TIA is unilateral in nature and occurs
either retinally or hemispherically. When a retinal TIA occurs, individuals experience a loss of vision on the same side in which an occlusion to the ophthalmic artery has taken place. This experience is often described as a “black-out” that usually subsides within a matter of minutes. The term hemispheric TIA is used interchangeably with the term brain stem TIA. During this type of neurological deficit, symptoms occur on the opposite side of the body in which the ischemia has occurred. The definition of a vertebral basilar artery or posterior artery TIA is as follows:

“Vertebral basilar arterial TIAs are more diversified than carotid arterial TIAs and they may produce sensory motor symptoms bilaterally or they may alternate from one side to the other in different episodes involving any combination of the four extremities with weakness, dysmetria, clumsiness, numbness, paresthesia, postural instability, homonymous hemianopia, or hearing loss” (Shah, Cooper & Lyons, 1992, p. 359).

Delayed treatment of TIA

After experiencing a TIA many individuals demonstrate a delay between symptom onset and treatment. Giles, Flossman and Rothwell (2006), conducted a study of 241 patients to determine behaviors immediately following a TIA. Patients were determined to have acted in an emergency if they sought medical attention as soon as they were able. They were judged to delay medical attention if they were able to seek services but waited for a more convenient time to receive medical assistance. The results of this study indicated 44.4 % of patients acted as in an emergency and 44.4% of patients delayed in seeking medical attention for greater than one day (Giles, Flossman & Rothwell, 2006). However, Goldstein, Bian, Samsa, Bonito, Lux and Matchar (2006)
implied through their research that 75% of patients sought medical attention on the day they experienced TIA symptoms. Of these patients approximately one-third were not hospitalized nor did they receive any further education or diagnostic evaluations upon seeking medical services. There is a need for immediate evaluation of patients who seek out medical attention as the risk of stroke highly increases after TIA, especially in the few months following the episode. Individuals who experience a TIA would benefit from educational information and preventative interventions (Goldstein, Bian, Samsa, Bonito, Lux & Matchar, 2006). A significant reason why individuals who experience a TIA should receive initial evaluation and follow up services is the high rate of overlooked and under diagnosed depression.

Yetterberg, Malm and Britton (2000), conducted a study in Sweden to determine whether performing systematic evaluations on 49 patients following discharge from the hospital would identify a decrease in progress and allow for an opportunity to provide outpatient treatment. The control and study groups were evaluated at discharge from the hospital, re-evaluated at one month following and compared once again after three months to determine differences in progress. Results suggested that many individuals do not need follow-up services regarding daily care activities. However, individuals who experience an acute stroke and are discharged home would benefit from follow-up services particularly aimed at identifying depression.

*TIA and Depression*

Of all the participants in the study by Yetterberg, et al., 49% were found to have depression within three months of experiencing a TIA (Yetterberg, Malm & Britton, 2000). Another study suggested depression occurs within the first month following a
stroke or TIA. This study indicated that 50.7% of patients developed depression within the first month (Aben, Verhey, Strik, Lousberg, Ladder & Honig, 2006). Aben, et al. furthered this study by comparing the occurrence of depression among stroke/TIA patients and those who experienced a myocardial infarction. It was determined individuals who experience a stroke or TIA are apt to have an increased incidence of depression when compared to individuals who have suffered a myocardial infarction.

Although many individuals experience depressive symptomology following a TIA, few studies have been conducted to determine whether depression can lead to TIA or stroke. May, McCarron, Stansfeld, Ben-Shlomo, Gallacher, et al, (2002) is one such study that measured the level of psychological distress and risk of stroke in middle-aged healthy men. These men were followed for fourteen years to determine if their risk of stroke or TIA increased if they developed anxiety, depression or other psychological distress over the span of fourteen years. This study determined when controlling for common risk factors, psychological distress was found to be a predictor of fatal ischemic stroke. There was not a correlation between psychological distress and nonfatal strokes or TIA. Although, psychological distress may not be conclusive as a predictor for TIA, research has shown exposure to tobacco smoke increases stroke and TIA risk.

*TIA and Risk Factors: Tobacco Use*

Bonita, Duncan, Truelsen, Jackson & Beaglehole (1999) performed a study that explored the relationship between smoking status and risk of stroke. The results indicated that active smokers are four times more likely to experience a stroke than those who have never smoked. The risk associated with stroke increases sixfold when comparing nonsmokers, who have not been exposed to secondhand smoke, to active
smokers. Secondhand smoke was associated with an overall increase of TIA and stroke rate as were hypertension, heart disease, and diabetes. When examining the relationship between secondhand tobacco smoke and stroke risk, the results were not as conclusive. There appears to be a high and statistically significant correlation between ischemic strokes and exposure to environmental tobacco smoke in the home (greater than 20 hours or more per week). However, a significant relationship between smoke exposure in the home and risk of TIA was not apparent; exposure to smoke out of the home yielded no association with the risk of ischemic stroke or TIA (Iribarren, Darbinian, Klastsky & Friedman, 2004).

It is apparent from the results of these studies that smoking cessation aids in the decreased risk for TIA and stroke occurrence. “Smoking cessation has been associated with a reduction in stroke-related hospitalizations and it therefore supports secondary prevention efforts” (Sacco, Adams, Albers, Alberts, Benavente, Furie, Goldstein, Gorelick et al., 1999, p. 583). Furthermore, it is a modifiable risk factor meaning individuals have the ability to reduce or control the predisposing factors of stroke and TIA. Currently the most effective approach for smoking cessation is a combination between pharmacological and behavioral treatments. These include but are not limited to nicotine products (i.e. nicotine patch, nicotine gum), oral smoking cessation medications, smoking cessation programs, counseling, skills training and social support development. Upon onset of a TIA, a number of individuals seek out medical attention and may be admitted to the hospital for diagnostic testing. This provides an opportunity for medical professionals to initiate smoking cessation in improve overall health in these individuals.

Guilmette, Motta, Shadel, Mukand & Niaura (2001), created a guideline for a
"systematic smoking cessation and relapse prevention that can be administered on an individual basis" (p.561). Within this program there are proposed intervention steps for termination of smoking. The first step of the program is abstinence from the use of tobacco which at times may be forced due to acute hospitalization for the evaluation and diagnosis of stroke and TIA symptomology. The research proposes four interventions, each of which takes ten minutes or less, to be carried out in healthcare settings. The first intervention involves inquiring the client regarding their current smoking habits and patterns. Secondly, the allied health care provider is to recommend the client to cease their smoking habit by providing education on the unfavorable health consequences and the relationship to their present medical status. In the event of a TIA, this may be of particular importance because of the increased risk of stroke in individuals who smoke.

The next step in the projected smoking cessation guideline is to aid the client in mutually selecting a goal day in which to terminate smoking habits and offer additional support. “Smokers who perceive support for stopping smoking are more likely to be successful than smokers without support” (Guilmette, Motta, Shadel, Mukand & Niaura, 2001, p.561). The final stage is to analyze a client’s progress regarding termination of smoking during a follow-up session with an allied health care provider. The authors suggest this program be comprised of the following: an allied health care provider who is in charge of administering the cessation and relapse prevention program, staff personnel who support the program and the client, and utilizing pharmacotherapy along with educational written materials.

TIA and Risk Factors: Alcohol Consumption
Although smoking displays a definite correlation with the increase of stroke and TIA, the effects alcohol are more controversial. Studies have shown the relationship between alcohol consumption and the risk of stroke is dose dependent (Goldstien et al., 2001). When the data is plotted on a two axis graph the outcome is that of a j-shaped curve. Numerous writers have indicated light to moderate alcohol consumption (less than 1 drink per day for non-pregnant women and two or less drinks per day for men) has been shown to decrease the risk of stroke and TIA whereas heavy drinking and chronic alcoholism (greater than five drinks per day) has displayed the opposite effects (Sacco et al., 2006, Goldstein et al., 2001, Flemming & Brown, 2004, & Gorelick et al., 1999). Of these, the study by Goldstein et al employs although light drinking decreases the risk of stroke it is not recommended that nondrinkers begin to consume alcohol. Alcohol consumption in high amounts is a modifiable risk factor which can be altered through lifestyle modifications; however, the most common and adjustable risk factor for stroke is hypertension.

TIA and Risk Factors: Lifestyle Changes

Hypertension is a major risk factor for the occurrence of stoke. According to the statement comprised by Goldstien et al., (2001), evidence has displayed that the management of high blood pressure leads to the prevention of stroke. Devine and Reifscheider (1995) have suggested through research that psychoeducational treatment may be effective in lowering hypertension which would aid in the decrease of stroke risk. The study conducted was a meta-analysis comprised of 102 previous studies designed to conclude if psychoeducational treatment assists with the lowering of blood pressure. Results indicated numerous forms of psychoeducational care are effective in the
reduction of hypertension symptoms among adults. Education, self-monitoring hypertension and medications, as well as utilizing psychosocial supports are effective means for the treatment of hypertension. Education positively effects individual’s education base and overall compliance regarding health care appointments. However, this trend is lost over time; therefore, the article suggests intermittent re-education as a solution. Inconclusive results were found regarding the outcome of relaxation techniques on the reduction of blood pressure as well as psychoeducational treatment on anxiety and weight.

Focusing on a more medical aspect of hypertension, research has indicated an ongoing relationship connecting systolic and diastolic blood pressures and stroke risk; stating the incidence of stroke increases as systolic and diastolic blood pressure rise. Many randomized control trials have suggested that lowering diastolic blood pressure five to six millimeters of mercury lessens stroke risk by 42% (Gorelick et al., 1999). However, it is essential to acknowledge that a remaining high systolic blood pressure with or without a high diastolic blood pressure is still a risk factor for stroke. Lifestyle modification in conjunction with pharmacological treatment and regular monitoring of blood pressure is an effective stroke prevention treatment regime. Lifestyle modifications may include but are not limited to weight loss, diet and nutrition, psychical activity, and as mention earlier, smoking cessation and a decrease in alcohol consumption.

Weight loss is a lifestyle modification that aids in the reduction of risk stroke. Obesity inclines an individual to coronary artery disease as well as cerebral vascular disease; furthermore, it is strongly related to the stroke risk factor hypertension. Obesity
is correlated with a high body mass index (BMI) which is defined as weight in kilograms divided by the square of body height in meters. According to the U.S. Government’s Official Web Portal, and the National Heart Lung and Blood Institute, obesity is considered “a body mass index (BMI) of greater than 30 kg/m².” In addition, a rise in an individual’s BMI is directly linked to an increased possibility of ischemic stroke especially after the age of eighteen. Numerous studies imply abdominal obesity is even more closely related to stroke than BMI or general obesity. “Abdominal obesity is defined by a waist circumference of greater than 40 inches in men and 35 inches in women” (Sacco et al., 2006). Goldstein et al., (2001) recommends that overweight individuals reduce their total body weight because of the comorbid conditions associated with obesity such as increased blood pressure, sugar and lipids. A basic method of effectively reducing obesity is to increase the amount of physical activity daily.

Numerous research studies have suggested that physical activity has positive effect on the reduction of multiple stroke risk factors; however, there is not an independent association between the amount of physical activity and the incidence of stroke but more or less a reduction of risk factors. Individuals who engage in moderate to high amounts of physical activity decrease their possibility of stroke occurrence. Lee, Hennekens, Berger, Buring and Manson (1999) conducted a study which examined the relationship between exercise and the risk of stroke among male physicians over an 11.1 year period. Results indicated with analysis of baseline data that participants who engaged in moderate-large amounts of physical activity had a decreased chance in developing stroke. In fact, participants who were most active had a 26% less chance of risk of stroke than participants who engaged in the least amount of physical activity.
When comparing baseline physical activity and stroke incidence it was determined participants who exercised once a week had a 21% less chance of stroke than participants who did not exercise. However, results indicated that those participants who engaged in greater amounts of exercise per week did not experience any further risk reduction.

Similar results were determined in another study suggesting men lowered stroke incidence by 20% and women 27% when engaging in moderate to high physical activity (Sacco et al., 2006). However, regardless of the positive benefits associated with engaging in an active lifestyle, sedentary ways of living continue to be the nationwide tendency. The statement for healthcare professionals submitted by the American Heart Association and the American Stroke Association Council on Stroke (Sacco et al., 2006) suggests that individuals who have experienced a stroke or TIA and are able to participate in physical activity should complete “at least thirty minutes of moderate-intensity physical exercise on most days of the week” (pg. 584). Another healthcare statement (Gordon, Gulanick, Costa, Fletcher, Franklin, Roth and Shephard, 2004) suggests that physical activity and exercise recommendations should be created according to each individual’s needs and limitations. In general aerobic treatment programs are suggested to be completed 3-7 days per week for duration of 20-60 minutes. Resistance training programs are proposed to be performed 2-3 days a week and consist of at least one set of 8-10 exercises that engage the chief muscle groups. Utilizing exercise and physical activity can assist individuals in managing modifiable risk factors (i.e obesity, physical inactivity) and lessen the risk of stroke. Furthermore programs which are comprised of structured therapeutic exercises have demonstrated an improvement in individuals’ overall mobility, balance and endurance.
Some research has implied that dietary consumptions may contribute to decreased incidence of stroke (Gorelick et al., 1999). However, it is uncertain if there is an independent association between healthy diet and the occurrence of stroke, or if it is more or less a reduction of risk factors. For example, a diet with a high intake of sodium is correlated to hypertension; therefore, consuming a diet low in sodium may reduce levels of blood pressure and result in a lower stroke risk. Goldstein et al., (2001), suggest "there may be a protective relationship between stroke and consumption of fruits and vegetables, especially cruciferous and green leafy vegetables and citrus fruit and juice" (p. 289). The recommended nutritional value regarding the consumption of fruits and vegetables for the decreased risk of stroke is at least five servings daily.

**Conclusions: A Need for After-care or Other Programs**

Overall, there are various modifiable risk factors which can be altered in order to promote a healthier lifestyle and prevent the risk of stroke after a TIA. The identification and modification of these factors can prevent long-term morbidity and mortality. The modifiable risk factors described throughout the literature review include smoking, alcohol consumption, hypertension, obesity, physical inactivity and poor diet and nutrition. From this literature we have found a lack of after care protocols or programs addressed solely to the treatment of individuals who have experienced a TIA. We will develop a program specifically designed for TIA focusing on lifestyle modifications and skills training to aid in the prevention of a major stroke. The following chapter will describe the process in which we have taken to design and develop this product.
CHAPTER III
METHODOLOGY

Through the UND occupational therapy course, OT: 453 Physical Aspects of OT with the Maturing Adult, we studied the occupational therapy process of evaluation, planning, implementation of treatment, and treatment outcomes. During the section regarding stroke diagnosis, it came to our attention there was limited awareness and knowledge of transient ischemic attacks within the occupational therapy realm. Based on the limited information regarding TIAs and occupational therapy services, an interest arose and the research process began for this scholarly project.

A comprehensive review of the literature was completed examining topics such as the pathophysiology of a TIA, treatment options for occupational therapists, reimbursement and the importance of education regarding the diagnosis. Research was conducted through credible databases available through the Harley E. French Library of Health Sciences at the University of North Dakota as well as phone conversations with two TIA clinics that were established to focus on TIA-related health care, one at Stanford University (recently opened) and the other at Maryland Medical Center. Furthermore, theories and models of occupational therapy practice were researched to determine which would best guide occupational therapists working with individuals who have experienced a TIA. The Occupational Adaptation (Kramer, Hinojosa, & Royeen, 2003) model was selected as an appropriate theoretical approach to guide occupational therapists who provide services to individuals who have experienced a TIA.
Upon completion of the literature review and utilization of other resources, the need for occupational therapists to provide services to individuals post TIA was readily apparent, due to the lack of systematic assessment clients currently receive. In addition, it was indicated throughout the research that the healthcare system is identifying the importance of TIA education and treatment to prevent future stroke within TIA clients. Moreover, physicians are largely recognizing the need for follow-up care of TIA clients as well. It was also apparent through the research that evidence-based research and outcome measures need to be completed in order to strengthen the efficacy of occupational services regarding secondary TIA treatment. Through these findings, it was determined that occupational therapists must be further educated about TIAs as well as their role regarding secondary treatment in order to develop this practice area based upon evidence. Therefore, the goal of the scholarly project was to provide occupational therapists with continuing education about involvement in secondary TIA treatments.

Once the pertinent information was gathered and the goal of the project was identified, a continuing education module for occupational therapists was developed using Microsoft® PowerPoint®.

Chapter IV is comprised of the education PowerPoint presentation and includes information about the vascular supplies in the brain that are commonly affected by a TIA and the resulting symptomology of each type, the importance of follow up treatment, occupational therapy evaluation and intervention regarding TIAs as well as occupational therapy’s roles in lifestyle modifications. Furthermore, the PowerPoint® presentation includes comprehensive supplemental notes for the lecturer.
CHAPTER IV

PRODUCT

The role of occupational therapist in the secondary prevention of TIAs is not an area that is well established. In order for occupational therapists to become involved in providing services to individuals who have experienced a TIA, it is essential they receive continuing education to effectively aid individuals in making lifestyle modifications to increase their function and quality of life. The following product is an educational presentation designed to inform occupational therapists regarding their role with clients who are post TIA. This educational presentation was developed utilizing Microsoft® PowerPoint®. It contains information pertaining to: the vascular supplies in the brain that are commonly affected and the resulting symptomology of each type, the importance of receiving occupational therapy services following a TIA, occupational therapy evaluation, and occupational therapy’s roles in lifestyle modifications as well as client and physician education.

Furthermore, the presentation will include lecture notes which are designed to provide the lecturer with supplemental information to be an adjunct to the PowerPoint® slides. The individuals who present this PowerPoint® need to be knowledgeable about TIAs and its implication in relation to occupational therapy. In addition, the lecturer may be provided with the literature review and/ or other chapters of this project to gain further understanding of the topic before presenting to the audience. It would be beneficial to provide the members of the audience with an outline of the PowerPoint® presentation for
a variety of reasons. These may include but are not limited to: guidance through the presentation, the ability to focus on learning materials rather than taking notes and to be provided with a tangible resource they can utilize as a guide for their own practice.

The Microsoft® PowerPoint® presentation is intended to last approximately 60-75 minutes. Following the completion of the presentation time will be allotted for questions from the audience members. The development of this product was intended to provide information to occupational therapists in a variety of venues. Some of these settings include: state occupational therapy conferences, national occupational therapy conferences and hospital and clinic in-services. In addition, this presentation may be utilized in the occupational therapy student classroom.
Secondary Transient Ischemic Attack Prevention: Continuing Education for Occupational Therapists

Alan Hodenfield, MOTS
Amy Shulstad, MOTS
Advisor: Dr. Michael Atkinson
Department of Occupational Therapy
University of North Dakota
Objectives

- Increase knowledge of pathophysiology of TIA
- Understand risk factors for TIA
- Identify settings for TIA services
- Examine occupational therapy’s role
- Explore treatment regarding modifiable risk factors
Transient Ischemic Attack (TIA) Facts

- Each year in the United States 200,000 to 500,000 individuals experience a transient ischemic attack (TIA) (Hinkle, 2005).
- As many as one in every five patients suffer a permanent stroke within three months after experiencing a TIA; for over half of these patients the occurrence arrives much sooner (Krieger, 2005).
These warning events provide an opportunity to prevent stroke

The estimated stroke risk following a TIA is 8% at seven days, 11.5% at one month and 17.3% at three months (Coull, A.J., Lovett, P.M., & Rothwell, 2004, p. 2)

Definition of a TIA

"TIA’s are warning episodes of temporary and focal neurological dysfunction of rapid onset, caused by cerebral circulatory failure and lasting no more than 24 hours"

(Shah, Cooper & Lyons, 1992, p. 358-359).
Most often an individual’s experience of a TIA evolves from no symptoms to maximum symptoms in less than five minutes.

Although symptoms can last up to twenty four hours, 90% of individuals experience episodes that occur between fifteen and thirty minutes of duration.

Individuals may have a single occurrence of a TIA or several occurrences over months of time.

(Shah, Cooper & Lyons, 1992)
Types of TIAs

"TIAs are categorized according to the vascular supply responsible for the neurological deficit, and may be divided into either the carotid arterial or basilar arterial systems"

(Shah, Cooper & Lyons, 1992, p. 359).
Types of TIA

- Carotid arterial system
  - Retinally
  - Hemispherically
- Vertebral Basilar arterial system

Carotid TIA:
- Unilateral in nature and occurs either retinally or hemispherically.
- Individuals experience a loss of vision on the same side in which an occlusion to the ophthalmic artery has taken place during a retinal TIA.
  - This experience is often described as a “black-out” that usually subsides within a matter of minutes.
- The term hemispheric TIA is used interchangeably with the term brain stem TIA.
  - Neurological deficit symptoms occur on the opposite side of the body in which the ischemia has occurred.

Vertebral Basilar TIA:
- More diversified than carotid arterial TIAs
- May produce sensory motor symptoms bilaterally
- May alternate from one side to the other in different episode involving any combination of the four extremities
- Symptoms most often include weakness, dysmetria, clumsiness, numbness, paresthesia, postural instability, homonymous hemianopia, or hearing loss

(Shah, Cooper & Lyons, 1992)
Risk Factors

- Non-modifiable
  - Age
  - Race
  - Family History
  - Gender

Non-modifiable: Stroke risk factors that cannot be treated

Age:
- "The risk of stroke doubles in each successive decade after 55 years of age" (Goldstein et al., 2001, p.280).

Race:
- There is a higher stroke risk and mortality rate in individuals who are African American and Hispanic when compared to the Caucasian population
- Potential reasons for the increased incidence of stroke within these populations is thought to be due to the higher prevalence of hypertension, obesity and diabetes mellitus; however, this does not explain all of the excess risk.
- Chinese and Japanese populations generally have a higher stroke risk

Family History:
- History of stroke on parental or material side of the family is potential risk factor for stroke
- Genetic heritability of stroke risk factors
- Lifestyle factors

Sex:
- Overall, stroke occurs more often in men than in women; however there are exceptions.
- According to the American Heart Association, in 1997, Women's fatality rate is 10.8% higher than men
  - Women age 35- to 44-year-olds
  - Women over age 85
  - 1 in 6 women will die of stroke, compared with 1 in 25 who will die of breast cancer (Circumstances such as oral contraceptive use and pregnancy uniquely contribute to the risk of stroke in women)

(American Heart Association, 2000 & Goldstein et al., 2001)
Hypertension:
- Research has indicated an ongoing relationship connecting systolic and diastolic blood pressures and stroke risk
- Incidence of stroke increases as systolic and diastolic blood pressure rise.
- Many randomized control trials have suggested that lowering diastolic blood pressure five to six millimeters of mercury lessen stroke risk by 42% (Gorelick et al., 1999).
- A remaining high systolic blood pressure with or without a high diastolic blood pressure is still a risk factor for stroke. (systolic blood pressure greater than 160 mm Hg and diastolic blood pressure less than 90 mm Hg).

(Goldstein et al., 2001)

Smoking:
- The risk of high blood pressure increases if an individuals engages in smoking
- Active smoking is a long recognized risk factor for stroke
- When an individual smokes, over 4,000 toxic chemicals are deposited into lungs and absorbed into the blood stream
  - Some of these chemicals damage blood vessel walls and can lead to atherosclerosis (narrowing of the arterial walls). This heightens the risk of a clot becoming lodged in an artery in the brain
- Smoking causes platelets to adhere to one another increasing the chance of a clot forming
- “People who smoke are two to three times more likely to have a stroke than those who don’t” (The Stroke Association, 2005).
Alcohol Consumption:
Alcohol consumption induces hypertension, hypercoagulable states, cardiac arrhythmias and reduces cerebral blood flow

(Gorelick et al., 1999 & Goldstien et al., 2001)

Obesity:
• Obesity inclines an individual to coronary artery disease as well as cerebral vascular disease; furthermore, it is strongly related to the stroke risk factor hypertension.

(Sacco et al., 2006)

Poor Diet and Nutrition:
Dietary factors may be risk factors for stroke
• Diets high in sodium increase risk for hypertension
• Association between diets lacking folate, vitamin B6 and B12 and the increased risk for stroke in case control studies
• Fat intake association remains uncertain

(Gorelick et al., 1999)

Physical Inactivity:
• Sedentary lifestyles are correlated with higher stroke risk
  • Increases in hypertension, obesity, diabetes

(Sacco et al., 2006)
• These risk factors are more complex in nature and require pharmacological and specialized medical treatments

(Hinkle, 2005 & Goldstein et al., 2001).
In a study conducted by Giles, Flossman & Rothwell, 2006, 44.4% of patients sought immediate medical attention and 44.4% of patients delayed in seeking medical attention for greater than one day. However, Goldstein, Bian, Samsa, Bonito, Lux and Matchar implied through their research that 75% of patients sought medical attention on the day they experienced TIA symptoms. Individuals who experience a TIA would benefit from educational information and preventative interventions (Goldstein, Bian, Samsa, Bonito, Lux & Matchar, 2006). 50.7% of clients develop depression within the first month of experiencing a TIA (Aben, Verhey, Strik, Lousberg, Ladder & Honig, 2006).
These are the settings in which an occupational therapist is most likely to come in contact with individuals who have experienced a TIA.

**Inpatient:**
- Skilled Nursing Facilities: Due to older age, decrease physical activity and weight gain
- Rehabilitation Centers: Due to increased incidence of recurrent stroke
- Stroke Clinic: Due to increased incidence of recurrent stroke

**Outpatient:**
- TIA Clinic: Popular in Great Britain
  - In August of 2006 Stanford University opened a TIA clinic.
    - Clients arriving in the ER with symptoms of TIA or stroke receive an initial assessment by a Stroke Center physician. Approximately 60% of TIA patients can now avoid hospitalization and have urgent follow-up care provided within the TIA Clinic.
  - There is another TIA clinic at the University of Maryland Medical Center which opened in 2003.
    - Clients receive a rapid brain assessment and can also avoid hospitalization if found to not be at a high risk for stroke within the next seven days.

**Home Health:**
- Individuals who are home bound may not attend to the clinic after experiencing TIA symptoms. An occupational therapist providing other services to the client may provide education regarding the importance of a doctors’ appointment. If a diagnosis of TIA is confirmed the occupational therapist can assist the individual in making lifestyle modifications to prevent stroke occurrence.
Occupational Therapy

- Documentation
- Theory
- Evaluations
- Interventions
OT Documentation

- Indication of occupational therapy services
- Progress notes
- Standardized assessments and outcome measures
- Evaluations
- Impact occupational therapy has on a client's mood and health status

- Indicate the reason for occupational therapy, along with the diagnosis code to clarify why therapy is needed
- Your notes should explain why the skills of an OT (e.g., unique knowledge, clinical judgment, decision-making ability) were needed to provide or supervise the treatment, assess progress, or make a change
- Demonstrate through documentation that the client: is improving or has the potential to improve, has not reached maximum benefit from the therapy, and that anticipated improvement is attainable in a reasonable and generally predictable period of time.
- Use standardized assessments and outcome measurement tools when possible to indicate progress and effectiveness
- Evaluations should include: a diagnosis and/or description of the problem treated; all of the conditions and complexities that may impact the plan of care; objective measures used to ascertain current functional status; the therapist's subjective impressions of functional status.

(AOTA, 2005)
Reimbursement Criteria

- Services must be prescribed by a physician and furnished under a physician-approved plan of care.
- Services must be performed by a qualified occupational therapist (OT) or by an occupational therapy assistant under general supervision of an OT.
- Services must be reasonable and necessary for the treatment of the individual's illness or injury.

- Occupational therapy is considered reasonable and necessary when it is expected that the therapy will result in significant improvement in the patient's level of function within a reasonable amount of time.

(AOTA, 2005)
Codes for TIA intervention

- Evaluations
  - 97003: Occupational therapy evaluation
  - 97004: Occupational therapy re-evaluation

- Therapeutic Procedures
  - 97110: Therapeutic procedure to develop strength, endurance, ROM, flexibility
  - 97532: Development of cognitive skills to improve attention, memory, problem solving, compensatory training
  - 97150: Group therapeutic procedure
  - 97530: Therapeutic activities dynamic activities to improve functional performance
  - 97535: Self-care home management training

(AOTA, 2005)
Theoretical Considerations for OT TIA Services

- Occupational Adaptation
  - Person: Desire for Mastery
  - Occupational Environment: Demand for Mastery
  - Interaction: Press for Mastery
- Adaptive Response
  - Relative Mastery
- Occupational Readiness
- Occupational Activity

**Person:** must encompass is a desire for mastery.
- When practicing from this model an occupational therapist can not conclude that an individual is unmotivated as emotional or physical dysfunction may have decreased their desire.

**Occupational environment:** demand for mastery.
- The features (social, physical and cultural) of a particular occupational environment identify the expected mastery. An occupational therapist will assist clients in determining the demands of a specific environment as well as the client’s abilities and shape interventions to those needs.

**Interaction:** consists of an interaction between the client’s desire for mastery and the occupational environments demand for mastery to produce a press for mastery.
- Interaction therefore represents both the client’s and environments expectations and encourages the client to make an adaptive response to the demand.

**Adaptive Responses:**
- The model of occupational adaptation utilizes an individual’s adaptive capacity; the client is the agent for change. Activities that have role relevance and personal meaning are used to evoke the adaptive capacity.
- In the adaptive response evaluation process, the client assess his/her own experience (relative mastery). Individuals assess the following:
  - Personal experience of efficiency (i.e. use of time, energy and resources).
  - Effectiveness (how much of their goal was achieved)
  - Satisfaction to self and society (personal satisfaction)
- The adaptation process is the focus for intervention in the occupational adaptation model and collaboration between the therapist and client is essential during this
phase. Each client’s treatment plan is composed of two types of interventions: occupational readiness and occupational activity.

- Occupational readiness examines “deficits in motor, process and communication/interaction skills to prepare clients for occupational activity” (Crepeau, Cohn & Boyt Schell, 2003).
- Occupational activity engages the client in tasks that are part of the occupational role in which they selected to work on for treatment. It is also important that the therapist incorporate the three elements (person, interaction and occupational environment) when planning and implementing treatment interventions.
- Occupational readiness and activity aid in producing client centered treatment interventions.

(Crepeau, Cohn & Boyt Schell, 2003) (Kramer, Hinojosa, & Royeen, 2003)
Evaluations

- Development of an occupational profile
- Evaluation of occupational performance
- Analyze performance patterns and contexts
The occupational profile retrieves information about the clients perspective and background. It can be completed through a standardized assessment, formal interview or by causal conversation.

The following information is gathered:
- Who is the client?
- Why is the client seeking service? What are the clients concerns relative to engaging in occupations?
- What areas of occupation are successful? What areas are causing problems/risks?
- What contexts support engagement in desired occupations?
- What is the client’s occupational history? (life experiences, values, interests, patterns and meanings)
- What are the client’s priorities and desired outcomes?

(AOTA, 2002, p. 616)
Evaluation of Occupational Performance

- Ability to carry out activities of daily life including:
  - Activities of daily living (ADLs)
  - Instrumental activities of daily living (IADLs)
  - Education
  - Work
  - Play
  - Leisure
  - Social Participation

(AOTA, 2002, p. 617)

Evaluation Process:
- Gather information from the client’s occupational profile
- Observe the client’s performance
- Select appropriate assessments
- Interpret the assessment data
- Determine client’s occupational performance strengths and weaknesses
- Collaborate with client to create goals
- Develop appropriate intervention approaches

The information gathered from the client’s occupational profile is used to guide decision making throughout the evaluation process. Specific areas to focus on include the client’s needs, problems and priorities. From this information, the occupational therapist will be able to select appropriate standardized assessments to identify and measure contexts, activity demands and client factors which may influence performance skills and patterns. After in the information from the assessment is analyze, the occupational therapist and client will collaborate to formulate goals that address the client’s desired outcomes. The occupational therapist will confirm outcome measures that would be the most appropriate to support the efficacy of secondary TIA prevention intervention approaches.

(AOTA, 2002, p. 617)
Habits
- Useful: support performance
- Impoverished: not established or need to improve
- Dominating: demanding or compulsive

Routines
- Occupations with established sequences

Roles
- A set of behaviors that have some socially agreed upon function or accepted norm

(AOTA, 2002, p. 623)

After experiencing a TIA, an individual may be faced with making lifestyle modifications to reduce their risk of stroke. When confronting these modifications, there may be an alteration in individuals’ typical habits, routines and roles. Therefore, it is important for the occupational therapist to be aware of an individuals current performance patterns and the contexts in which they occur. The evaluation of contexts will impact the intervention process as each individual has a unique condition surrounding their contexts.
Treatment Interventions

- Modifiable Risk Factors
  - Hypertension
  - Smoking
  - Alcohol consumption
  - Obesity
  - Physical Inactivity
  - Poor Diet/Nutrition
  - Depression
Treatment of Hypertension

- Management of high blood pressure leads to the prevention of stroke
- Psychoeducational treatment
- Systolic and diastolic blood pressures

Psychoeducational Treatment:
- Numerous forms of psychoeducational care are effective in the reduction of hypertension symptoms among adults.
  - Education, self-monitoring hypertension and medications, as well as utilizing psychosocial supports are effective means for the treatment of hypertension.
  - Education positively affects individual’s education base and overall compliance regarding health care appointments. However, this trend is lost over time; therefore, intermittent reeducation is needed.

(Devine, E.C., & Reifscheider, E., 1995)

Blood Pressures:
- Lowering diastolic blood pressure five to six millimeters of mercury lessens stroke risk by 42% (Gorelick et al., 1999).
- Remaining high systolic blood pressure with or without a high diastolic blood pressure is still a risk factor for stroke.
- Lifestyle modification in conjunction with pharmacological treatment and regular monitoring of blood pressure is an effective stroke prevention treatment regime.
  - Lifestyle modifications may include but are not limited to weight loss, diet and nutrition, psychical activity, smoking cessation and a decrease in alcohol consumption.
Treatment for Smoking

• “Smoking cessation has been associated with a reduction in stroke-related hospitalizations and it therefore supports secondary prevention efforts” (Sacco, Adams, Albers, Alberts, Benavente, Furie, Goldstein, Gorelick et al., 1999, p. 583).
• Smoking cessation programs
• Combination of pharmacological and behavioral treatments

- Active smokers are four times more likely to experience a stroke than those who have never smoked (Bonita, Duncan, Truelsen, Jackson & Beaglehole, 1999).
- Secondhand smoke is associated with an overall increase of TIA and stroke

**Smoking Cessation Programs:**
- Administered on an individual basis or within a group setting
- Proposed intervention steps for termination of smoking
  - First step of the program is abstinence from the use of tobacco
    - Inquiring the client regarding their current smoking habits and patterns
    - Allied health care provider is to recommend the client to cease their smoking habit by providing education on the unfavorable health consequences and the relationship to their present medical status
  - The second step is to aid the client in mutually selecting a goal day in which to terminate smoking habits and offer additional support
    - “Smokers who perceive support for stopping smoking are more likely to be successful than smokers without support” (Guilmette, Motta, Shadel, Mukand & Niaura, 2001, p.561)
- The final stage is to analyze a client’s progress regarding termination of smoking during a follow-up session with an allied health care provider

**Behavioral Treatments:**
- Counseling, skills training and social support development

(Guilmette, Motta, Shadel, Mukand & Niaura, 2001).
• Heavy drinking and chronic alcoholism (greater than five drinks per day) increases risk of stroke
• Light to moderate alcohol consumption (less than 1 drink per day for non-pregnant women and two or less drinks per day for men) has been shown to decrease the risk of stroke
  • Although light drinking decreases the risk of stroke it is not recommended that nondrinkers begin to consume alcohol

**Behavioral Treatments:**
• Administer treatment individually or within a group setting
  • Counseling, skills training and social support development

(Sacco et al., 2006)
Obesity is considered "a body mass index (BMI) of greater than 30 kg/m²" (Sacco et al., 2006, p. 584).

- Rise in an individual's BMI is directly linked to an increased possibility of ischemic stroke especially after the age of eighteen.
- Abdominal obesity is even more closely related to stroke than BMI or general obesity.
  - Abdominal obesity is defined by a waist circumference of greater than 40 inches in men and 35 inches in women.

(Sacco et al., 2006).

Treatment of Obesity

- Goldstien et al. (2001) recommends that overweight individuals reduce their total body weight because of the comorbid conditions associated with obesity such as increased blood pressure, sugar and lipids.
- Physical Activity
- Healthy Eating
Physical activity has positive effect on the reduction of multiple stroke risk factors.

Individuals who have experienced a stroke or TIA and are able to participate in physical activity should complete at least thirty minutes of moderate-intensity physical exercise on most days of the week.

General aerobic treatment programs are suggested to be completed 3-7 days per week for duration of 20-60 minutes.

General resistance training programs are proposed to be performed 2-3 days a week and consist of at least one set of 8-10 exercises that engage the chief muscle groups.

Physical activity and exercise recommendations should be created according to each individual’s needs and limitations.

Programs which are comprised of structured therapeutic exercises have demonstrated an improvement in individuals’ overall mobility, balance and endurance.

Exercise does not have to consist of running x miles per day or lifting x amount of weights. Engaging in activities such as push mowing the lawn or cleaning the house are forms of exercise and are beneficial to your health.

(Gordon, Gulanick, Costa, Fletcher, Franklin, Roth and Shephard, 2004) (Sacco et al., 2006)
It is uncertain if there is an independent association between healthy diet and the occurrence of stroke, or if it is more or less a reduction of risk factors.

High intake of sodium is correlated to hypertension; therefore, consuming a diet low in sodium may reduce levels of blood pressure and result in a lower stroke risk.

"There may be a protective relationship between stroke and consumption of fruits and vegetables, especially cruciferous and green leafy vegetables and citrus fruit and juice" (Goldstien et al., 2001, p. 289).

Recommended nutritional value regarding the consumption of fruits and vegetables for the decreased risk of stroke is at least five servings daily.

(Goldstien et al., 2001)
Behavioral Treatments:
- Counseling
- Skills training
  - Leisure, self esteem, time management, stress management, social skills, coping skills, community integration, and assertiveness skills
- Social support development
  - Community involvement, engagement in past healthy relationships with friends and family

(Devine, E.C., Reifschneider, E., 1995)
It is important to inform health care professionals as well as the general public about the role of occupational therapy in the treatment of TIAs. This combination of media will be most beneficial to our service as it utilizes various types of OT promotion. For example some individuals prefer to obtain information through newspaper, while others favor a higher tech method such as the internet. Both low and high cost methods for marketing service have been identified. Low cost methods include word of mouth, newspaper, website and inservices. Those methods which are more expensive include television and radio services. In addition to advertising, brochures can be utilized within the healthcare facilities.
Summary

- Occupational therapist are skilled in providing holistic secondary TIA prevention intervention to improve individuals functional performance and quality of life
Additional Resources

- Free pamphlets and brochures are available through the American Heart Association as well as the American Stroke Association
  - StrokeAssociation.org
  - Americanheart.org
References

References

References

CHAPTER V
SUMMARY

When an individual experiences a TIA, it is a warning event that "can serve as both a warning and an opportunity: a warning of an impending stroke and an opportunity to take steps to prevent it" (Mayo, 2005). An individual who experiences a TIA needs urgent care in the form of testing, advice and management from a specialist. Clients need to be made aware of their diagnosis and be directed on lifestyle management and medication. Through the review of the literature, it has been determined that there is a great need for further research regarding TIAs and healthcare's role. Although, TIA is not a new concept, the need for rapidly assessing and providing individuals with follow-up treatment is displayed as highly needed. Furthermore, occupational therapists need to promote their services in the secondary prevention of TIA, as they have the skills to provide individuals with guidance in lifestyle modification and mental health issues. From the information gathered, a Microsoft® PowerPoint® presentation was developed for occupational therapists, providing information regarding the pathophysiology of TIAs, risk factors for TIAs, setting for TIA services, the role of occupational therapy, and possible treatment interventions for the TIA population.

The implementation of this project will include partnership with various organizations such as state occupational therapy associations, the national occupational therapy association, healthcare facilities and specialized stroke clinics. At these various sites, occupational therapists will be educated on the importance of secondary TIA
prevention and will receive information to take back to the settings in which they work. Before this PowerPoint® presentation is delivered, it is recommended a panel of current practicing occupational therapists view the presentation and provide constructive feedback to assist with successfully developing the most beneficial information regarding TIAs and occupational therapy.

This presentation has some limitations in that it primarily contains introductory information, has been developed to only target occupational therapist, and was created by occupational therapy students who do not have clinical experience in this area. In the future, this product should be expanded and adapted to provide information to other healthcare professionals as well as provide community members with information regarding the subject matter.

In summary, as further research is conducted on TIAs regarding urgent care and follow-up services, it is essential for occupational therapists to seek out additional education services in order to provide their clients with optimal care. Through attending continuing educational courses, occupational therapists are able to further define their role within this realm of care and increase their knowledge pertaining to secondary TIA prevention. Overall, continuing education is important for the occupational therapist, the individuals whom they serve, and the occupation therapy profession, as it is crucial to remain competent and advance in an ever-changing world.

Recommendation for the future development of this scholarly project include: 1) further research be conducted into the efficacy of the secondary prevention of TIAs and occupational therapy services, 2) a panel of current practicing occupational therapist review the material, provide constructive feedback and determine the practicality of its
implementation within the healthcare setting and 3) updating the PowerPoint®
presentation as new information on TIAs becomes available.
REFERENCES


