Assessing the Need for Patient and Provider Education to Increase Statin Compliance

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I have abided by UNCG's academic integrity policy on this assignment.

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Dedication and Acknowledgements

I dedicate this project and work to the support team I have had throughout my DNP program. My husband and parents were invaluable in helping to take care of me and my children through those busy days of working, staying up late studying, researching, and completing assignments. Thank you, Dr Hoskins, Dr Kordsmeier, Dr Lawrence, Dr Wicker, and Dr Henson, for the support and encouragement in a medical crisis. I would not have made it through this program without my wonderful classmates that held me up when I was trying to get to the other side.

Abstract

Background Atherosclerotic cardiovascular disease (ASCVD) is the leading cause of death in the United States. High cholesterol is a modifiable risk factor for ASCVD related events such as myocardial infarction and stroke for which statins are used as primary prevention to reduce cholesterol levels and mortality. Compliance with taking statins is often a problem in primary care practices. **Purpose** Improve patient compliance by educating healthcare providers on statin criteria, side effect management, and patient education. **Methods** Following a robust literature review that the lack of education affects compliance with patient adherence to statins, education was presented to project site providers and staff of statin benefits, side effects, and compliance. In addition, a patient education flyer was created and shared with patients in the primary care office before the provider entered the exam room for review. The effect of education on the patient was evaluated after the patient had time to read about cardiovascular disease (CVD), the advantages and possible side effects of statin use, and was compared to patients willing to accept therapy. **Results** Overall, 57% of patients agreed to proceed with statin therapy while 43% declined. **Recommendations and Conclusions** This project had limitations due to staffing and was in place for three weeks. The results were positive in a very small sample size and should be repeated on a larger scale. There were no disadvantages to the patients getting the information and should be given to all patients that have a risk factor for CVD.

Key Words medication compliance, statin side effects, statin use, education, discontinued statin use

Background and significance

Atherosclerotic cardiovascular disease (ASCVD) is the leading cause of death in the United States (Bradley et al., 2019; Vincent et al., 2019). HMG-CoA reductase inhibitors, or statins, are a class of medication that reduce low-density lipoprotein cholesterol. High cholesterol is a modifiable risk factor for which the use of statins is recommended as first line treatment. Statins are used as primary prevention and for prevention of subsequent cardiovascular events, reducing mortality rates (Bradley et al., 2019; Jacobson et al., 2019; Vadhariya et al., 2019). Compliance continues to be a hurdle for providers when treating cardiovascular disease (CVD) events such as myocardial infarction and stroke. The use of statins presents with risks of side effects as does any medication, but fear of these side effects, and how they may influence daily activities are a common complaint voiced by patients (Bradley et al., 2019; Jacobson et al., 2019). Even with recommendations by the American Diabetes Association (ADA), the American College of Cardiology (ACC), and the American Heart Association (AHA), there are patients for which statins are recommended and not currently under therapy. The evidence shows this is due to side effects or not being offered statins (Bradley et al., 2019; Jacobson et al., 2019; Peverelle et al., 2019; Vadhariya et al., 2019). This project's desired outcomes were that education for both healthcare providers prescribing statins and the patients initiating treatment should increase the use of statins and patient adherence. Understanding the reasons patients are declining or discontinuing statins must be addressed to improve the usage rates. However, statins are not effective if the patient is not recommended a statin or if they do not adhere to the medication. If education is the key, then most patients will accept statin therapy when the evidence is presented to them in an office visit by their provider, discussing all concerns and having a plan to handle side effects.

Purpose

This project aimed to demonstrate increasing education for the provider on which patients meet the criteria for statin use, as well as how to manage potential side effects, and increasing education for the patient will improve patient compliance.

Review of Current Evidence

The literature search was done largely through the University of North Carolina at Greensboro library, using PubMed and CINAHL databases. The search was started using terms such as "statin use," "education," "primary care," "increase statin use," and "discontinued statin use." Articles were included that were peer reviewed, within five years of publication, and used random controlled trials, systematic reviews, and meta-analysis. To date, fifteen resources have been included although two appear to be too narrow in focus and may not address the themes adequately.

What is contributing to nonadherence:

Throughout the literature reviewed, five themes appeared indicating causes for reduction in statin use. A common theme of poor adherence relates to fear of the possible side effects, and the impact of perceived side effects on daily living. Of those that declined to take a statin, the number one reason stated by patients was related to side effects, most commonly the fear of experiencing them (Bradley et al., 2019; Jacobson et al., 2019). Another common theme was the cost of statins for those that are not insured or are underinsured or having never been recommended statins by a provider. All these barriers tied into the main theme of poor education related to statins, whether it be the provider's or the patient's understanding of risk and benefit.

The literature reviewed confirmed that education is a missing piece in starting therapy with statins (Jacobson et al., 2019). Most people that started statins do stay on the medication

when there is open communication with providers, and if a side effect was bothersome, changing medications or lowering the dose kept these patients in therapy. The article by Tunney et al., noted missing information in charting was another factor when trying to understand why a patient is not on a statin (2017). Questions arise when a patient that qualifies for therapy was not being placed on a statin. After investigation with the patient the reality was that comorbidities or previous use was intolerable (Tunney et al., 2017). If the information was not placed in the medical record, it will appear as if therapy was never initiated, and time wasted finding out the details.

A separate theme fell under the financial and education factors. Frequently women, minorities, and those with financial barriers were never offered statins (Bradley et al., 2019; Mosca et al., 2020; Vadhariya et al., 2019; Vincent et al., 2020). One conclusion was that they were offered but did not follow up with the recommendation. By updating the providers with the most current guidelines, showing them research related to the populations that are getting left out of therapy, and providing patients in-clinic education, compliance can be improved.

Statin side effects

The first of the five themes noted throughout the literature focuses on side effects. Statin use has potential side effects: muscle aches, joint pain, and rhabdomyolysis are most common (Jacobson et al., 2019). Patients experiencing these may have muscle aches, cramps, weakness, joint pain, and joint stiffness. Some other complaints have been abdominal pain, memory loss, anxiety, and depression, with a lack of energy and fatigue (Jacobson et al., 2019). Perceived side effects and a reduced ability to perform usual activities of daily living are a common reason given for discontinuing these medications (Bradley et al., 2019; Jacobson et al., 2019). A review of studies acknowledges that there may be other reasons for the side effect of muscle pain. Many

of the patients that experienced muscle symptoms could be at risk of aging muscle complaints. If patients routinely experience musculoskeletal pain, it could be misinterpreted as statin associated (Lansberg et al., 2018). Patients complain of difficulty doing regular chores and increased trouble leaving the house to get groceries or visit friends. If patients are physically affected by taking these medications, and do not have a strong motivation to continue them, they may not seek out the provider for help, and in turn discontinue therapy.

A second notable side effect of statin use was new onset diabetes. Statin use has been associated with a 10-12% increase of new onset diabetes in patients (Lansberg et a., 2018). Patients on high intensity statins who have already been diagnosed as pre diabetic appear to be more at risk, however the bigger reduction in cardiovascular events with statins must be considered (Lansberg et al.., 2018). To reduce the risk of diabetes, weight loss and lifestyle modifications can be implemented prior to, or during statin use (Lansberg et al., 2018). This side effect was associated with the second theme addressed: fear. Fear was a big reason people do not want to start statins, and in this instance, fear of developing diabetes (Bradley et al., 2019).

Fear of side effects

Often the fear of possible side effects is enough to deter people from ever starting statins. For patients that had these fears, they were the number one reason to not start therapy (Bradley et al., 2019; Jacobson et al., 2019). A study by Jones et al. examined the information people were finding on the internet and if that may be causing the hesitance (2020). Researchers looked at the impact of misinformation available on the internet to the decision-making when starting statin therapy (Jones et al., 2020). The study asked hypothetical family members to analyze internet information on statins. The overall result of the study was still encouraging. Most web searches produced information that was helpful in making informed medical decisions along with input

from the provider, and patients were encouraged to take the medications by their family members (Jones et al., 2020). For those that had fears of side effects, most declined to even start. Those that did start stated the fear of CVD events were stronger than possible side effects of the medication (Jones et al., 2020).

Costs

Another theme that reoccurred was cost of medications or lack of insurance. Costs of medications are always a factor for patients and providers. According to the IQVIA institute report, compliance with medications can be as high as ninety-five percent when there is no co pay associated, but that rate goes down as prices rise. As much as sixty percent of prescriptions are left at the pharmacy as costs hit $500 (IQVIA Institute for Human Data Science, 2020; Phillion, 2022). High prescription costs can make a difference for patients in their cost of living. If patients must make choices between picking up medications or buying groceries, many prescriptions will be left at the pharmacy. Statins can be expensive without insurance, and newer, specialized medications such as PSK9 inhibitors have very high costs (Kosmas et al., 2018). Evolocumab is a self-administered, injectable PSK9 inhibitors, cholesterol-lowering medication that has been very successful in reducing levels with fewer side effects (Kosmas et al., 2018). A medication that is easy to use, with fewer side effects, and less frequent dosing will increase compliance rates. However, the study in review looked at the cost-effectiveness of the medication for those that insurance would not cover and found that excellent qualities of the medication are not the only factors for compliance (Kosmas et al., 2018; Vincent et al., 2019). If the medication is too expensive, the patients will not refill it. Patients without insurance, or those underinsured fall into a category of patients that were never offered these medications. This

includes women and minorities who make up 59.2% of patients who were never offered therapy (Bradley et al., 2019).

Never offered

Along with side effects and costs associated, there appeared a group of patients that stated they were never offered statin therapy (Bradley et al., 2019; Vadhariya et al., 2019; Vincent et al., 2019). Studies note that 33% of patients will take statins solely on the recommendation of their provider and diagnosis of dyslipidemia (Lansberg et al., 2018) and yet women, black and Hispanic men, and those with little or no insurance were most likely to have never been offered cholesterol reducing medications (Bradley et al., 2019; Peverelle et al., 2019; Vincent et al., 2019).

In an analysis using data from the National Health and Nutrition Examination Survey (NHANES) and the National Ambulatory Medical Care Survey (NAMCS), non-Hispanic Blacks, non-Hispanic Whites, and Hispanic patients were studied with high cholesterol. Premature death rates from coronary heart disease are higher in non-Hispanic Blacks than non-Hispanic Whites, and Hispanic rates are lower than Whites (Bacon, 2020). Although similar time was spent with a physician, there were notable differences apparent in treatment offered for high cholesterol. Whites were offered cholesterol medication more often, and non-Hispanic blacks and Hispanics were counseled in lifestyle modifications. This was most apparent in the category of patients aged 18-49 (Bacon, 2020). Lifestyle modifications may be more effective when applied in this age group compared to older adults, however statins are shown to be more effective than modifications alone. The question still stands on why providers are not offering these patients medications. Is there an implicit bias with Black and Hispanic patients related to lack of insurance or ability to pay? Socioeconomic factors, access to healthcare, and health behaviors

may all be a part of the decision-making process, as well as comorbidities. Regardless, the data suggest consistency is not achieved across all ethnic groups (Bacon, 2020).

Women and adherence

Women were found in the groups with lower adherence, even though postmenopausal women over age 55 are at an increased risk of CVD (Vadhariya et al., 2019). There have been noted a few reasons for women being in the lower adherence groups, such as increased risk of side effects (Vadhariya et al., 2019) which can affect responsibilities as a caregiver for a family. The literature notes that women have different risk factors and changes in their risk that can vary according to age. Comorbidities such as diabetes and hypertension, levels of hormones related to pre and post menopause, as well as psychosocial factors influence risk level (Mosca et al., 2020). Provider education or awareness of the increased need for statin use in these women brings up one of the larger issues in compliance. The current screening tools may not be sufficient for women at this point, as the rates of death from CVD for women are not declining at the same rate as those are for men (Mosca et al., 2020).

Education

Analyzing why statins are not being used as regularly as the guidelines suggest is a multifaceted dilemma, as most health care related issues are. Communication between the provider and the patient can prepare the patient for what to expect when starting any new therapy and discussing possible issues may alleviate stress and fear. Patients need to be aware of their current CVD risk and how to prevent vascular disease. They need to be made aware that vascular insufficiency, heart attack, and stroke can be prevented by using medications such as statins along with diet and exercise. Patients often cite these reasons as their motivation to start or continue with their statin therapy (Bradley et al., 2019; Jacobson et al., 2019). Discussing fears,

possible side effects, and how to manage these side effects should be a staple of care. Providers need to learn how to identify patients at risk of poor adherence (Jacobson et al., 2019; Peverelle et al., 2019) and help them navigate possible misinformation on the internet. Patients' willingness to try statins after education and to retry after experiencing side effects, is noted in multiple studies (Bradley et al., 2019; Jacobson et al., 2019; Vincent et al., 2019). Often just changing the medication or lowering the dosage meets the needs of the patient and reduces or eliminates side effects (Jacobson et al., 2019).

Preparing a patient at the first discussion about starting statin therapy could improve success. If a patient is discharged from the office with a prescription and these points were not discussed in the office, the patient may be exposed to nonmedical advice from friends and family, social media, and the internet. In the study using the Patient and Provider Assessment of Lipid Management registry, people that declined statins had fears of heart attacks, but not the understanding that increased cholesterol caused CVD events. Overall, they expressed concern over the safety of the medications, and concerns that these medications caused long-lasting repercussions such as diabetes (Bradley et al., 2019).

Educational tools are helpful to increase compliance. One study looked at changing the packaging approach as it provided a daily reminder of when medication was taken, with the additional benefit of controlled dosing and ease of accessing compared to a bottle. Having a daily dose packaging also became a prompt to refill when the pack was close to finished (Bosworth et al., 2017). Other hands-on tools such as literature may prove to be helpful as well.

A study out of Spain focused on increasing provider education and relating that to cardiovascular guideline implementation (Etxeberria et al., 2018). There were two main goals for the study, the first was to increase annual A1C testing for Diabetes, increase performance of labs

for hypertensive patients (particularly albumin-creatinine ratio), and increase the percentage of patients with dyslipidemia getting a clinical risk (CR) assessment. The second goal was to have improvements on the clinical outcomes for all these patients and improve the clinical processes for testing and evaluating on a routine basis, all related to standard guidelines (Etxeberria et al., 2018). Clinicians were placed into two groups, with the control group having guidelines introduced in the usual way through the internet and clinical meetings or emails, while the intervention group were provided physician led meetings related to the guidelines, and CR assessment workshops for physicians and nurses. The results were mixed; there was not an increase in the number of times bloodwork was drawn for patients. The number of CR assessments in the intervention group did increase for men and women, and in all disease categories tested. There was as an increase in interventions and medications used. There was an improvement noted with dyslipidemia CR which resulted in a decrease in women being prescribed statins if they had no history of heart disease or diabetes (Etxeberria et al., 2018). Peer education and in person training appear to help physicians increase use of guidelines in their practice which should lead to improvement in patient clinical outcomes.

In addition to increasing education, personalized programs that are patient-centered have shown improved adherence. Increased interactions face-to-face with providers and between pharmacists and patients increase adherence which directly leads to better health outcomes (Lansberg et al., 2018). Using a variety of tools such as drug reminder pill packs, educational videos, and audiobooks, in addition to counseling and shared decision-making, can increase patient education and adherence (Lansberg et al., 2018).

Gaps in research

The review by Pinho-Gomes et al. merely pointed out the gap in education and raised more questions, such as the comparison between patients undergoing revascularization trials. This study noted the false belief that guideline directed medical therapy was not as important after revascularization, especially in coronary artery bypass grafting (CABG) versus percutaneous coronary intervention (PCI) (Pinho-Gomes et al., 2018).

The article by Mosca et al. discussed a gap in our understanding of CVD risk in women. As well as having varied psychosocial factors, the relationship between lipids and diabetes on blood pressure in women may be more detrimental than in men (2020). Overall, the relationship with women and CVD is not exact and statin therapy guidelines may not be appropriate for the female population.

The literature revealed a need for more education. Providers are not always meeting the needs of all their patients at risk from CVD. Using this information, providers can look for the patients that are most at risk of being overlooked, such as women, minorities, and the under insured. Providing education to the patients to review before they meet with the doctor can address the need for statin therapy. As the provider and patient review evidence, discuss fears, and make a plan, compliance rates will improve. This project was to increase provider and patient education, evaluating whether the statin therapy rates are positively affected.

Conceptual Framework/Theoretical Model

The Health Belief Model was the framework for this project. This model was developed in the 1950s to help understand why patients were not utilizing preventative screenings and guidelines. Healthcare providers understand that preventative measures can prevent and detect early disease when used, however the researchers believed that how people felt about the impact

of disease on their life and the effectiveness of the treatment determined their participation in these practices (LaMorte, 2022).

In this study location, a single provider primary care practice, the patients that are on statins, or fall under the ACC/AHA guidelines to be on statins, were the targeted population. The reviewed evidence-based research guides the use of statins in moderate to high-risk patients. This literature helped develop a tool to educate the patients about statin use, and educate the staff when patients experience side effects of statins and need management of their medication. By addressing patients' understanding of the need and effect of statin therapy in office, the use of statins increased, which will lower statin levels and reduce long-term cardiovascular health disorders.

Translational Framework

Looking at the literature, one can establish that by increasing patient education about statin use and reducing the fear associated with taking them, statin compliance can be increased. Providers' education must be focused on which patients qualify for statin use, and how to manage the side effects some patients experience. By using Plan Do Study Act, the project used the literature to guide the educational tool. A brochure pointed out the need for statin therapy in qualifying populations, as well as the possible side effects with therapy. As the project applied the education for patients and providers, the results were analyzed, and a plan was implemented for a permanent change in practice when successful in increasing statin use.

Plan

The Plan portion of this project was establishing what the problem needing to be addressed. The data that will be used to guide the project and how the project will be

implemented (National Implementation Research Network; Frank Porter Graham Child Development Institute [NIRN], n.d.).

This project was held in a small primary care office with one provider, one certified medical assistant (CMA), and one phlebotomist. The office was in an urban setting in Greensboro, North Carolina and had a racially diverse, mostly middle to older adult population. There was a designated waiting area, two treatment rooms, a lab for processing specimens, and a provider office in this clinic setting. The participants were patients who had a measurable ASCVD risk, diabetes, or both. An educational tool was researched, downloaded, and prepared for use on patient routine check-up appointments.

IRB approval

The Institutional Review Board of the University of North Carolina at Greensboro approved this project as a quality improvement project and not a clinical trial or research. The project site was at a private single-provider practice, where the medical director reviewed and approved the project. Provider education on the current guidelines for risk assessment was provided, which addressed which patients needed to be started on therap. These patients offered were in the office for 3 month, 6 month, or annual visits.

The literature shows the problems with statin compliance are the barriers in place that providers need to address. Educating patients about the benefits of statin use, discussing the possible side effects, as well as talking about how those side effects will be handled if they do arise, reduced barriers. Reducing fear and increasing confidence between the provider and patient created an environment where the patient felt heard and trusted their provider to help them.

Do

The plan portion established what the problem was that needed to be addressed. In this project, there was the need to increase education for the provider on which patients qualify for statin therapy, and for the patients, it related to why statins are important. Statins are used for primary prevention and the prevention of subsequent cardiovascular events, reducing mortality rates (Bradley et al., 2019; Jacobson et al., 2019; Vadhariya et al., 2019).

This portion of the project showed that the plan of change in the dedicated environment was carried out. It discussed what patients are in the group and if they represent the population well (National Implementation Research Network; Frank Porter Graham Child Development Institute [NIRN], n.d.). In the primary care office, the project participants were given education, met with the practice physician to discuss the material and reflect on any concerns that may be held, and were then given the opportunity to start therapy. The data collected was categorized and analyzed for interpretation.

Intervention

Preventive Cardiovascular Nurses Association provides educational tools to download for providers and patient use. Access was free after creating an account, and the brochures covered multiple topics related to cardiovascular health. Downloading the cholesterol and statin side effects information sheets was straightforward and required laminating one copy for each treatment room. A few of each were photocopied in case the patients would like to take it with them to look over later. Any costs for photocopies were covered by the office.

For the provider, a 15-minute session was held to discuss current guidelines for statin use according to the United States Preventative Services Taskforce (USPTF) and the ACC. This was held two weeks prior to the start of data collection. Discussion was had regarding patients that may have been missed in the past such as women or those that did not have insurance, in the

assumption that they would not want them. The team confirmed the data collected will include patient data of those that are not on statins, meet the guidelines for therapy, and are not excluded according to our parameters, will be participants in the project.

The plan for implementation was straightforward. Over a three-month period, the provider and CMA were to educate patients using the new brochure. When the provider and patient were done with the physical exam and moved on to the planning portion of the visit, the statin conversation was initiated. The provider talked about the ASCVD guidelines and reinforced the education on the pamphlet. To make this a two-way conversation, the provider encouraged questions about statin use and any myths they may have heard. This time gave the patient the opportunity to express concerns and allay fears. The patient was hopefully acceptable to a moderate to high statin therapy to prevent CVD progression and events.

Data collection

Data collected was free of patient identifiers. The CMA used an Excel checklist to collect and de-identify patient data that is based on categories. The checklist included the age group, race, LDL level, DM, FH early CVD, and women's specific risk. The checklist was scanned in at the office and will be kept for five years. The scanned document was sent via OneDrive and kept password-protected, accessible only to the project organizer and project faculty.

Data was recorded about which patients were approached, and divided into sets based on age, race, and if they had previously tried statins in the past. Data excluded was based on end staged renal disease, pregnancy, younger than aged 40, older than aged 75, and those that were currently on a statin program.

Study

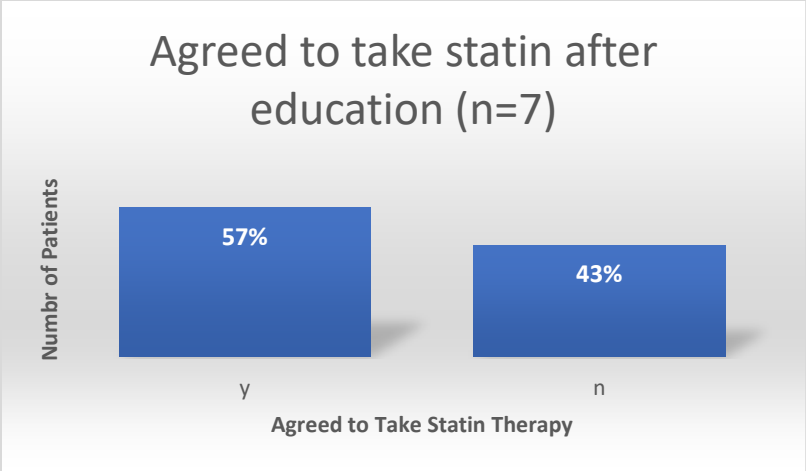
In the study portion, how the project was performed using the tools planned was shown. This included how successful the project was and any complications in the implementation (National Implementation Research Network; Frank Porter Graham Child Development Institute [NIRN], n.d.)

Data Analysis

The collected de-identified data was sorted by age, race, sex, and risk factors for CVD. The patients were asked if they had taken statins previously and if they had stopped therapy by the CMA and provider. All patients that had taken statins and stopped, or had never been offered statins, were placed in a category of not taking them currently. That information was then sorted as accepting or declining statin therapy after education was received.

Results

The study found that by providing patients with an educational pamphlet about statins when they are waiting for the provider opened the door for conversation. Barriers encountered included loss of staff in a one provider office. The CMA resigned one week prior to start of data collection. After the stake holders revised the data collection to be done by the provider, he was taken out on medical leave two weeks after implementation. The strength of this project was the basis of education and one on one conversation. When fears and concerns are directly addressed, they can be reduced if not eliminated.



Discussion

There is no simple solution for increasing statin compliance. The project goals were to increase statin therapy compliance by educating the provider on which patients are most at risk and looking at current guidelines. The Health Belief Model provided a strong framework for this project. People need to understand the impact high cholesterol has on CVD, and the risk factors for serious events associated, as well as how the side effects of statins and management of them, will affect their daily life. The project organizer provided educational materials for office staff to share with patients to read which would teach and reinforce the need for statin therapy in CVD. Once the patients were given a tool that explained CVD and statins, they were much more receptive to therapy. The provider asked for the patient to speak of fears and concerns with statin therapy. By bringing these topics up, concerns were addressed in a medical setting.

According to the American Diabetes Association (ADA), the American College of Cardiology (ACC), and the American Heart Association (AHA), some patients who should be taking statins are not currently doing so. This can be due to side effects or because they have not been offered the medication. This information is supported by evidence as per studies conducted by Bradley et al. (2019), Jacobson et al. (2019), Peverelle et al. (2019), and Vadhariya et al. (2019).

This project reinforced the belief that a strong education for the patient when beginning any new treatment program is the most important part. However, through this review, results showed that education for the patient is not a stand-alone factor. Providers need continued education too, and not all are keeping current with the guidelines and recommendations for patients. As providers understand that patients come to the office with preconceived fears and concerns, these can be approached head-on and may be able to reduce or eliminate many of them. All providers need to analyze patients and look for those who are at high risk of poor adherence. Anticipating this may encourage providers to ask questions of patients, such as how they are physically handling the medication or having side effects. Asking if they have insurance barriers or financial issues that are making it difficult to maintain medications is important, and they may be able to be put in touch with community resources to help. Being aware that the internet and the patient's family members can be a factor in deciding to take statins is crucial as well.

Recommendations for Future Study

Free brochures are available from Preventative Cardiovascular Nurses Association which can be printed and laminated at minimal cost. One for each exam room can be posted or handed to the patient when seated, as well as placed in the waiting room. The provider would be responsible for advising the patient of possible side effects of the statins which is a usual part of practice.

Act

In the Act portion, the study looked at what needed to be changed and what may be kept the same before moving forward with the implementation for future populations (National

Implementation Research Network; Frank Porter Graham Child Development Institute [NIRN], n.d.)

With this process being effective in providing the provider and patient education, statin compliance improved. Bringing ancillary staff, such as a CMA, into the discussion with the patient and providing the groundwork with the educational pamphlet, opened the door for increased provider-patient communication. Some limitations were noted in small practices. Ancillary staff is helpful in identifying patients that qualify for statin therapy due to labs, as well as being able to provide the information to the patients prior to the provider exam. In single provider offices, or offices that experience staff shortages, getting the information to the patient may be challenging. Staff turnover can limit the number of patients that are receiving education. The patients that are in the office during a time of new employee training, may miss the education. Continued turnover rates may allow more patients to miss the opportunity, reducing compliance rates.

Helping the provider focus on managing the patients through any side effects they experience, will maintain open dialog. Patients will be able to read, discuss, and have all questions answered before they pick up their medication. In rural areas, providing educational materials at the office or community centers would help educate those patients that are not being seen regularly, or that have limited access to medical education.

Conclusion

Improving statin compliance through education is a practical and easily implemented step that can give high-quality results in the primary care setting. Many medications patients currently use have side effects that are addressed when prescribed, these should not be avoided due to fear that the patient will reject the therapy. The project has shown that addressing these side effects

upfront helps improve compliance and alleviate concerns. Patients were given education before seeing the provider, questions were encouraged, and discussion was had regarding benefits as well as possible side effects. Encouraging patients to communicate if these arise gave the patients confidence to start therapy. Statin therapy as a primary prevention for reducing CVD risk will be successful in practices that implement education as a tool.

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