

Diabetic nephropathy in type ii diabetes essay sample

[Health & Medicine](#), [Diabetes](#)



Abstract

This paper is aimed at discussing the Diabetic Nephropathy in Type II Diabetes. It focuses on the risk factors associated with the diseases. It also explains the factors that cause the disease in individuals. The prevention of Diabetic Nephropathy in Type II Diabetes is also fully addressed. The treatment and nutrition associated to this disease is discussed in details. Diabetic nephropathy, in patients with diabetes mellitus is a major cause of end-stage renal failure. The paper focuses on two diseases; diabetes and in particular type 2 and nephropathy. It shows why patients suffering from type II diabetes are more exposed to the risk of getting nephropathy.

Epidemiological studies have shown a high genetic susceptibility to diabetic nephropathy. Patients with end stage renal disease secondary to diabetes mellitus have an increased death rate associated with dialysis than non diabetic patients also in dialysis. Their morbidity rates with respect to vascular complications are also higher. The paper discusses in details all the risk factors that are associated with the development of diabetic nephropathy.

It also looks into the possible treatments used to address this disease. The prevention of on set of diabetic nephropathy is looked into and how the progression of the disease can be slowed down in these patients. The paper describes the method used to access the literature and why the literature picked was deemed to be appropriate.

The findings of the research have been clearly stated and presented in this document. Extensive discussions have been carried out and conclusions on the research question have been fully derived. Any material used has been clearly cited from the websites that they were down loaded from.

Introduction

The risk factors, causes, prevention and treatment of Diabetic Nephropathy in Type II Diabetes

Diabetic nephropathy is a disease of the kidney associated with long history of diabetes. It affects the tiny blood cells net work in the glomeruli, which is an important structure of the kidney made up capillary blood vessels. ¹ The glomerulus's is a blood filter in the kidney. A nephropathy diabetic individual can exhibit nephritic syndrome due to excessive filtration of proteins into the urine. High blood pressure is also another complication arising and a person can have progressive impaired kidney function. In its severe form diabetic nephropathy can lead to kidney failure, end-stage renal disease, prompting dialysis or kidney transplant. ¹

The risk of getting nephropathy is determined strongly by the genetic factors of a person. Positive family histories are very crucial in clinical identification of patients suffering from type II diabetes who have a high risk of getting renal disease. ² An intense effort is being carried out to help in identification of genes coding for renal risk. There is an exemplification of reports on

insertion of polymorphism of angiotensin -converting enzyme through analysis of the complex candidate's genes.

There is a majority belief that the progression of diabetic renal disease associated with polymorphism is prevalent in some ethnic populations. An identification of putative loci which is associated with higher renal risk through positional analysis has been positive in selected populations.³ However, there has not been any clarification on the functional role of hypothetical genes and generalization of reports. The main aim is to control glycemia in patients with type II diabetes suffering from nephropathy. The tight control of glycemia prevents the onset and progression of diabetic nephropathy in patients with type II diabetes. Patients with type II diabetes, who had poor glycemic control six months prior to the onset of dialysis, had lower survival rates than those with good glycemic control with the same condition according to a study carried out. To control glycemia a life style modification is recommended although its efficacy is lowered by progression of type II diabetes. Ancillary drug treatment is necessary in most patients.⁴

Smoking increases the risk of both on setting type II diabetes and development of microalbuminuria and hastening the progression of diabetic nephropathy in type II diabetes patients. It is not definite if antihypertensive treatment and in particular pharmacologic blockade prevent the development of diabetic nephropathy but some data suggest this might be the case.

Obesity is a potential factor of development of renal diseases and type diabetes. EURODIAB observational trial shows that intake of proteins excessively is correlated to the micro albuminuria degree and there is no hard evidence supporting the effect of dietary intervention. ⁵ To prevent progression in type 2 diabetic patients, monitoring of micro albuminuria once a year is highly recommended for early interventions.

Some other factors associated with a high risk of developing nephropathy are cholesterol concentration, insulin resistance and the sex of a person. The risk is normally lower in women before they reach the age of menopause.

Methods

I carried out my literature review from my expansive reading on this disease from the net. I searched on diabetes to get the general information diabetes. I learnt that they are two types of diabetes that is type 1 and type 2. I narrowed my search further and concentrated on the type II diabetes. This was in a bid to help me understand how having this condition made you to be more susceptible to Diabetic Nephropathy. Since Nephropathy is a renal disease, I visited sites with information on renal failure. When searching I concentrated on those websites with information on the definition, causes, risks, prevention and treatment of Diabetic Nephropathy in patients with type II diabetes. It was hard to get one site with all this information so I had to extract my information from different sites.

I concentrated with those websites that are www. org since they are more reliable than those that are www. net . I also concentrated on those that

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were www. gov since they are likely to have the current statistics and information on this disease. Some of the websites I visited are pub med, diabetes care, kidney international, among others. Pub med had a lot of information on the risks, factors, treatment and prevention of Diabetic Nephropathy.

I made use of journal articles available on the net such included; Hong Kong journal of nephrology, journal of the American society of nephrology, the New England journal of medicine, official journal of the international society of nephrology, oxford journals to name just a few. The official journal of the international society of nephrology had also carried out clinical trials to show the gene susceptibility to diabetic nephropathy. The experiment proved one of the many theories that this disease is genetically predisposed.

When using any article in my research, I took note in the time the article was published and compared if any developments had occurred between publications. I preferred to use the information from the latest publications as it was more updated on any new interventions and recommendations made in Diabetic Nephropathy with a bias to type 2 diabetes. The medicine world keeps changing and new discoveries are made in controlling the progress of diseases. It is always good to refer to the latest interventions as they give adequate updated information on any disease.

I also visited several support sites for both kidney and diabetic patients as they had a lot of information on both diabetes and diabetic nephropathy. Most of these sites directed one to sites that have additional information or

related information on Diabetic Nephropathy. In case there was a site I had missed out on when searching I was able to access it from the sites that I had down loaded. The journals cited material from elsewhere and enabled me to increase my search scope.

Most medical journals have the recent information from different authors in different parts of the world enabling one to get different perspective of the disease world wide. I included the information that I deemed important in addressing the research question that I chose.

Results

Type II diabetes mellitus, can occur in young people but it normally begins in mid life or past mid life. Type 2 is held accountable for all 90 percent of diabetes and with a preference rate of 4 percent. Diabetic nephropathy which is the loss of kidney functions in diabetes patients is a major complication of diabetes. ⁶

It is characterized by a presence of proteins in urine commonly referred to as proteinuria. Diabetic nephropathy majorly causes end stage renal failure in the western world. Many patients with type II diabetes and other diabetes will not develop diabetes nephropathy as only a small group of patients is susceptible to this condition.

Risk factors

The risk factors associated in on setting diabetic nephropathy are; (1) genetic predisposition- this is where by if any one of your first degree

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relatives had a history of cardiovascular problems and hyper tension then you are more susceptible to suffer from this disease.

(2) Ethnic groups- there are a variation in prevalence of diabetic nephropathy between different ethnic groups. The highest has been recorded among Pima Indians with a persistent proteinuria of 80 percent after 25 years of diabetes. The cumulative risk in Caucasians after 20 years of diabetes is around 30 percent.

(3) Quality of glycaemic control- tight control of glycemia controls and offsets the progress of diabetic nephropathy in type II diabetes patients. Recent studies from steno hospital showed that tight glycemia control had an effect on progression of diabetes nephropathy than tight BP control. Patients who had better glycemia control suffering from type II diabetes, had higher chances of survival in dialysis, than those with bad control suffering from the same condition. A modification of lifestyle can assist in glycemia control although the efficacy diminishes with progression of type II diabetes. There is an increase in tendency of type II diabetes patients injecting themselves with insulin several times daily, to achieve HbA1c values < 7% target.

(4) Level of blood pressure- 80 percent diagnosis of type II diabetes patients are found to be exhibiting high blood pressure. Hyper tension is responsible for promoting progress in patients with diabetic nephropathy and there can be an early intervention. Higher BP values are recorded in patients with type II diabetes who develop diabetic nephropathy and overt proteinuria than the non-proteinuric ones. Diabetic patients with ESRD, a high wave velocity pulse

rate, exhibited a reduced vascular compliance leading to death.

Hypertension is considered a predictor of cardiovascular (cerebrovascular, coronary, peripheral disease) and micro vascular (retinal and renal) associated with diabetes.

(5) smoking- smoking increases the risk of developing of microalbuminuria; increases the risk of onset in patients with type II diabetes and the progression of diabetes nephropathy in patients with type II diabetes. It is evident in patients who have achieved adequate BP control and are on ACE inhibitors.

Obesity is another catalyst that increases renal risk factor in everyone.

Microalbuminuria degree is correlated with excessive protein intake but this gives vague evidence on dietary intervention. However in the diabetic nephropathy advanced stages protein intake does not affect progression.

Many analgesics have an impact on the progression of the disease as shown by studies from Sweden these include acetaminophen and aspirin doses both dependently inclined the risk of suffering from chronic renal failure. ⁷

Prevention

A yearly monitoring of microalbuminuria is recommended for type II diabetes patients. It is important to practice integrated approach for the prevention of progression in proteinuric or microalbuminuric patients. These can comprise dietary sodium control, reducing body weight, intensifying glycemia control, controlling hypertension through pharmacological blockade of the RAS by ACE inhibitors and smoking cessation.

The single most important measure is lowering the BP to at least 120/70 mmHg as was recently written by the appropriate BP control in diabetes (ABCD) trials. ⁸ Renal risk in diabetes nephropathy can be reduced by around 20 to 40 percent but 70 percent of these still progresses leading to a justification that novel therapeutic approaches have to be developed.

Glycosaminoglycan sulodexide administered to nephropathy patients with type II diabetes for a span of 4 months reduced albuminuria that was additive to ACE inhibition. Whether this intervention translates to preventing progression is yet to be seen. There is a suggestion that there is clinical evidence between diabetic nephropathy development and inflammatory markers e. g. C-reactive proteins. ⁹ There is still no evidence that the anti-inflammatory approach will be successful. If the above treatments were to be implemented daily in clinical practices, the progression and onset of diabetic nephropathy could be slowed down or prevented all together.

Discussion

Diabetic nephropathy is the leading cause of an increase in the number of dialysis in patients in developing countries and a major cause of renal replaced therapy in developed countries. There are both non-genetic and genetic risks associated with progression and development of diabetic nephropathy. ¹⁰ an extensive analysis has been done on the candidate genes but a lot of controversy is still evident in the genetic markers of this disease. Poor glycemia control, hypertension and lipid control are some of the non-genetic risks associated with this disease. The first clinical indication of

diabetic nephropathy is albuminuria but there is no clarification on its predictive role in the progress of overt nephropathy in patients with type II diabetes.

The presence of autonomic neuropathy, smoking, higher ingestion of proteins, diabetic retinopathy and high levels of albuminuria are some of the major risks associated with the increase of risking the development of diabetic nephropathy. Controlling blood pressure, dyslipidemia and glycemic levels are some of the strategies aimed at preventing or at least, postponing diabetic nephropathy. Angiotensin-2 blockers and angiotensin-converting enzyme inhibitors are known to bring about independent results that cannot be achieved solely by controlling of blood pressure. Lifestyle modification by quitting smoking and consuming low protein diets is very therapeutic.

Maintaining a healthy weight through proper eating and exercising is also a good method of preventing and slowing progression of diabetic nephropathy. The best preventative measure for diabetes nephropathy would to prevent the development of type II diabetes by living healthily and avoiding consumption of fast foods. ¹¹ Studies have shown that proteinuria, a risk that is associated with type II diabetes can be reversed and prevented to reduce the mortality rate in these patients.

Controlling development of nephropathy and proper management of diabetes plays a very major role in reducing mortality of diabetic patients. The individual risk of developing end- stage renal disease is low as patients

are more likely to die from cardiovascular disease before the renal functions terminally decline.

Abnormalities such as lipid metabolisms, flux of fuel and endothelial functions, which are some of the of the pronounced dysmetabolic changes associated with type II diabetes are known to cause more deaths nephropathic patients than in those who don't have the disease. ¹²

The survival rate of type 2 diabetic neuphropathic patients is 29 percent much lower than the 39 percent of the non-neuphropathic patients. The prevalence of nephropathy diabetes is known to increase with age among patients suffering from type II diabetes mellitus.

There is an increase in percentage of patients on renal replacement therapy throughout the world. Among the Latino Americans and African Americans the prevalence of type II diabetes is higher than that of the European Americans. This means that these two races are genetically predisposed to get diabetic nephropathy than the European Americans proving that the fact that some ethnic groups stands a higher risk of getting this disease.

It is recommended that patients with diabetes should be referred to diabetic renal clinics and incase they are diagnosed with diabetic nephropathy; they should be initiated into early treatment. ¹³ Modifiable risks should be aggressively managed to retard the progression of diabetic nephropathy. The most important factor is controlling an individual from getting diabetes

and especially type 2 as there many complication associated with this disease and nephropathy is just one of them.

If one develops diabetes's it is good to manage it through proper nutrition and daily insulin injections and also have regular checkups for other complications that may be associated with the disease. This way, these complications will be fully addressed and progression and preventative measures taken.

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