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Review Article

NON COMMUNICABLE DISORDERS WITH SPECIAL REFERENCE TO DIABETES MELLITUS RELATED COMPLICATIONS

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ABSTRACT

The major cause responsible for the non communicable diseases (NCD) is inappropriate lifestyle that include reduced physical activity, consumption of unwholesome diet, improper work schedules and many more like these. Ayurveda narrated these phenomenons as 'Prajnaparadha' (intellectual blasphemy). The incidence of lifestyle diseases like hypertension, diabetes mellitus, dyslipidaemia, obesity and their related complications are on the rise. Diabetes Mellitus is regarded as a syndrome characterized by chronic hyperglycaemia due to relative deficiency of insulin or resistance or both. These complications associated with uncontrolled diabetes are due to vascular changes, diabetic neuropathy and infections in glucose loaded tissue. Prominent among these complications are conditions like abscesses, multiple boils, cellulites, carbuncles, phosthitis, balano-phosthitis, diabetic foot lesions, fungal infections like candidiasis, muco-mycosis, empyematous lesions like pyothorax, pyometra , appendicitis, subdural empyema, septic arthritis , pyocele (empyema affecting gall bladder), cholecystitis, empyematous pyelonephritis, necrotising fasciitis & fournier's gangrene requiring the surgical concern. These all conditions requires a strict diabetic control that could be achieved following the standard guidelines mentioned concerning the madhumeha followed by the surgical & parasurgical measures followed by the standard wound care as described in shashti-upkrama. The role of vranshodhaniya & vranropaniya kshaya is also of worth mention.

Keywords : NCD, Prajnaparadha, madhumeha, shashti-upkrama, vranshodhaniya , vranropaniya kshaya.

INTRODUCTION:

Complication is something that makes a situation hard to understand or deal with. Diabetic complications are enhancing with the chronicity of the disease. These complications leads to the major morbidity and mortality associated with both IDDM and NIDDM diabetes mellitus. The complications are broadly divided into macro vascular and micro vascular conditions. Macro vascular complications arised from atherosclerotic phenomoenas in the larger blood vessels and the type of disease depend up on the location of atherosclerotic lesionⁱ for eg. Coronary artery disease, Peripheral vascular disease . Cardiovascular disease (coronary artery disease) is the major macro vascular complication and includes mainly myocardial infarction and stroke. The risk for cardiovascular disease is abut 4 to 8 times more for patients of Type 1 diabetes. ⁱⁱThe utmost micro vascular complications are diabetic retinopathy, diabetic nephropathy and diabetic neuropathyⁱⁱⁱ. These diseases are arised due to increase in thickness of capillaries and arterioles^{iv}.

Complications of Diabetes Mellitus:

Vascular complications in diabetes mainly develop from continuous or chronic hyperglycemia. The primary cause of micro vascular complications is hyperglycemia while macro vascular complications may involve other factors also.



Macro vascular complications:

Smeltzer and Bare^vdescribed macro vascular diseases as atherosclerotic changes in the larger blood vessel. The process involves chronic inflammation and injury to the arterial wall in the peripheral or coronary vascular system. Acute vascular infarction subsequently, results from accumulation and rupture of oxidized low density

lipoprotein (LDL) particles in the endothelial wall of arteries. The main macro vascular complications associated with diabetes are cardiovascular diseases (mostly coronary artery disease), cerebral vascular disease and peripheral vascular disease.

Coronary artery disease: Coronary artery disease (CAD) is an inflammatory disorder characterized by atherosclerotic changes in the coronary arteries. The whole process includes a complex interaction of various risk factors including the arterial cell wall and the blood as well as the molecular messages that they exchange. It is a major cause of mortality in type 2 diabetes because of lack of early warning sign and asymptomatic nature^{vi}. The most common manifestation of CAD is Myocardial infarction.

Cerebral vascular disease: Atherosclerotic lesions in cerebral blood vessels manifests the cerebral vascular disease. An embolus formed in any part of blood circulation lodges into cerebral blood vessel and makes a blockage which can cause transient ischaemic attacks, strokes etc. Due to high concentration of blood glucose level in diabetic patients , the condition of disease may be more complicated or recovery period become prolonged^{vii}.

Peripheral vascular disease: Peripheral vascular disease is also referred as lower extremity arterial disease. Due to atherosclerotic changes in large blood vessels of lower extremities, the disease occurs and diagnosed by lack of peripheral pulse in lower regions of body^{viii}. Prolonged hyperglycemia in diabetes mellitus damage peripheral blood vessels which ultimately impairs blood flow to legs and feet. It is also the reason of gangrene and amputations in diabetic patients.

Micro vascular complications:

The major micro vascular complications are retinopathy, nephropathy and neuropathy and are respectively major causes of blindness, end-stage renal disease and various painful neuropathies. The micro vascular lesions enhance the thickening of basement membrane in the capillaries and arterioles of corresponding organs.

Diabetic retinopathy: The major micro vascular complications experienced by individuals of chronic diabetics is Diabetic retinopathy. It usually causes visual impairment and progressively leads to total blindness^{ix}. It can be divided into background retinopathy and pre proliferative retinopathy which are respectively characterized by partial occlusion of the small blood vessels in the retina with formation of micro aneurysms in the capillary wall and total occlusion of the small blood vessels in the retina leading to destruction of retinal capillaries.

Diabetic Neuropathy: It comprises of a wide range of abnormalities involving both somatic and autonomic nervous system. It includes a group of disorders that damage the nerves, including peripheral (sensory motor), autonomic and spinal nerves^x. Neuropathy may be sensory motor neuropathy or autonomic neuropathy.

Sensory affects the distal portion of the nerves, more especially the lower extremities and the autonomic engender a broad range of dysfunctions affecting almost every organ and system of the body. Glycemic control and tissue transplant from the islets of Langer Hans can be used to delay or prevent the development of neuropathy.

Diabetic Nephropathy:

Diabetic nephropathy is the micro vascular Related Unhealthiness that may develop an end stage renal disease^{xi}. and early starting of proper reno -protective treatments and diagnosis the diseases is play a key role for prevention. Type 2 Diabetic individual who have micro albuminurea are more susceptible in comparison to those have normo-albuminuria where as, more chance in type 1 diabetes individual develop persistent microalbuminuria. Patients with diabetic nephropathy due to end stage renal disease generally rely on renal dialysis or renal transplantation .

Conclusion:

Diabetic complications worsen diabetes cases, increase mortality rate and enhance burden on health care resources of countries. Therefore, efforts to prevent these complications will greatly diminish the debilitating effects of diabetes and its complications.

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