

"The complex Management of 55-Year-Old Male with Long-Standing Type 2 Diabetes, Non-Proliferative Diabetic Retinopathy, and Diabetic Nephropathy: A Multi-disciplinary Approach"

B. Ramavathi, Assistant Professor, Department of Pharmacology Avanthi Institute of Pharmaceutical Sciences

Mrs.V.Devi, Assistant Professor, Department of Pharmacology, Emanuel College of Pharmacy

Corresponding Author: Jaya Surya Bammidi

Doctor of Pharmacy, Avanthi Institute of Pharmaceutical Sciences, Cherukupally, Vizianagaram

Abstract:

A 55-year-old male with diabetes type 2 mellitus, non-proliferative diabetic retinopathy, and recently diagnosed chronic renal failure related to diabetic nephropathy is the subject of this case. The patient approached with complaints of general weakness, tiredness, and a 15-day midnight fever. Laboratory tests revealed that the patient had high blood glucose levels, anemia, increased liver enzymes, and compromised renal function. Tight control of glucose, Managing of blood pressure, anemia correction, and treatment of etiologies are all part of the multidisciplinary care strategy.

Keywords: diabetes type 2 mellitus, etiologies.

Introduction:

Diabetes nephropathy is the primary cause of chronic kidney disease in individuals commencing renal replacement treatment (1) and is linked to an increased risk of cardiovascular death (2). Proteinuria more than 0.5 g/24 h has traditionally been used to diagnose diabetic nephropathy. Overt nephropathy, clinical nephropathy, proteinuria, or macroalbuminuria have all been used to describe this stage. Seminal European research from the early 1980s demonstrated that modest levels of albumin in the urine, which were not normally detectable by traditional procedures, were predictive of the eventual occurrence of proteinuria in type 1 (3-5) and type 2 (6) patients with diabetes. Microalbuminuria or initial nephropathy were terms used to describe this stage of renal dysfunction. A variety of risk factors have been linked to the onset and growth of Diabetic retinopathy. Diabetes duration, control of glycemic levels, age, type of diabetes, hypertension, renal illness, dyslipidemia, pregnancy, anaemia, smoking, and alcohol are all systemic risk factors. Ophthalmic risks include posterior retinal detachment, cataract surgery, and pre-existing chorioretinopathy, among others. The duration of diabetes and the level of control of glucose are the most powerful indicators of the possibility of retinopathy [7].

Case study:

A 55-year-old male patient was admitted to the hospital with the major complaint of loss of appetite over the past month, as well as general weakness and fatigue. Patient had a midnight fever for 15 days. Since 13 years, the patient suffers from type 2 diabetes mellitus (DM) and

non-proliferative diabetic retinopathy. The patient is a heavy smoker and alcoholic. Her father had diabetes and high blood pressure. His temperature was normal, his blood pressure was 120/80 mm Hg, his pulse rate was 92 beats per minute, and his respiration rate was 24 beats per minute. The laboratory investigation of patient hemoglobin 9.8g/dl, red blood cells 3.79 million/cumm, Erythrocyte Sedimentation Rate 38mm/hr, lymphocytes 8%, SGPT 55IU/L, Alkaline phosphatase 222IU/L, fasting blood sugar value 240 mg/dl, random blood sugar 275mg/dl, Blood Urea Nitrogen 69 mg/dl, creatinine 2mg/dl. Remaining investigations were normal.

Diagnosis;

The patient has diabetes mellitus and was recently diagnosed with chronic renal disease due to diabetic nephropathy.

Management:

Injection insulin (short acting +long acting) dose of 24 IU/ml subcutaneously given twice a day. N acetyl cysteine and taurine combination tablet used in the treatment of diabetic kidney disease. Tab. N-Acetyl cysteine- 150 mg and + taurine-500 mg orally administered once a day. Tablet calcium and vitamin d given orally once a day. Tablet iron folic acid given once a day. Tablet pantoprazole 40 mg orally given once a day.

Discussion:

Diabetic nephropathy is a frequent consequence of long-term diabetes mellitus that can impair renal function severely. The finding of chronic kidney disease related to diabetic nephropathy suggests that the kidneys have been harmed by uncontrolled diabetes over an extended period of time. Diabetic nephropathy is characterized by gradual destruction to the glomeruli of the kidneys, resulting in proteinuria, hypertension, and decreased renal function. The high BUN and creatinine levels are most likely related to poor kidney function caused by diabetic nephropathy. Chronic kidney disease treatment entails strict control of type 2 diabetes, hypertension, and other risk factors the low hemoglobin level could be linked to both diabetic nephropathy and its effect on erythropoiesis. Diabetes must be actively managed to regulate blood glucose levels in order to halt the evolution of diabetic nephropathy. Controlling blood pressure is critical for managing renal problems.

Erythropoiesis-stimulating drugs and iron supplements may be used to treat low hemoglobin. Medication required to treat certain symptoms or problems. It is critical to educate patients about the necessity of medication adherence, lifestyle changes (such as quitting smoking and liquor reduction), and dietary limitations (such as sodium and protein intake). Regular ophthalmologic evaluation is required for diabetic retinopathy monitoring and management.

Conclusion:

The combined effort of numerous medical specialists, clinical pharmacist and nursing staff is required to handle the patient's complex medical conditions. To enhance long-term results and quality of life for the patient, successful management entails not only the treatment of symptoms but also the identification and change of underlying risk factors.

References:

- 1.US Renal Data System: *USRDS 2003 Annual Data Report: Atlas of End-Stage Renal Disease in the United States*. Bethesda, MD, National Institute of Health, National Institute of Diabetes and Digestive and Kidney Diseases, 2003
- 2.Valmadrid CT, Klein R, Moss SE, Klein BE: The risk of cardiovascular disease mortality associated with microalbuminuria and gross proteinuria in persons with older-onset diabetes mellitus. *Arch Intern Med* 160:1093-1100, 2000
- 3.Mogensen CE, Christensen CK: Predicting diabetic nephropathy in insulin-dependent patients. *N Engl J Med* 311:89-93, 1984

- 4.Parving HH, Oxenboll B, Svendsen PA, Christiansen JS, Andersen AR: Early detection of patients at risk of developing diabetic nephropathy: a longitudinal study of urinary albumin excretion. *Acta Endocrinol (Copenh)* 100:550-555, 1982
- 5.Viberti GC, Hill RD, Jarrett RJ, Argyropoulos A, Mahmud U, Keen H: Microalbuminuria as a predictor of clinical nephropathy in insulin-dependent diabetes mellitus. *Lancet* 1:1430-1432, 1982
- 6.Mogensen CE: Microalbuminuria predicts clinical proteinuria and early mortality in maturity-onset diabetes. *N Engl J Med* 310:356-360, 1984
- 7.Saini, Deep C; Kochar, Anju; Poonia, Raunaq. Clinical correlation of diabetic retinopathy with nephropathy and neuropathy. *Indian Journal of Ophthalmology* 69(11):p 3364-3368, November 2021. | DOI: 10.4103/ijo.IJO_1237_21