PROGNOSIS OF UNCONTROLLED DIABETES AND HYPERTENSION LEADS TO SECONDARY COMPLICATIONS: A CASE REPORT

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ABSTRACT

Prognosis of uncontrolled Diabetes Mellitus (DM) is a major reason of secondary complications. Which are eventually increasing the morbidities and mortalities in all over the world. The correct dose and protocols most probably reduce the chances of secondary complications. Therefore; we have aimed this case report to rationalize the anti-hyperglycemic drugs. A 51 years old woman with frequent chest pain, headache, neckache, sweating and radiating pain in left arm was presented in clinical setup. She has diabetes since the last 10 years and hypertensive since 5 years. Initially she tried to manage her disease by controlling her diet and then started Tab. Glucophage (Metformin) 250 mg in morning, 500 mg at bed time and Herbesser Tablet (Diltiazem) as antihypertensive agent. Afte some time her medications were changed; Tab Lowplat (Clopidogrel) Tab. Ulcenil, Tab Disprin CV 300 mg, Tab Herbesser 30 mg tid, Tab Nitromint, tab Vastarel MR bid and Atorvastatin 20 mg for 4 weeks. After 6 months, angioplastic report showed the same results. She was admitted again in same hospital for clinical support of her uncontrolled glucose, fluctuating blood pressure and development of secondary complications. It is thus inferred from this case report that the aggressive and irrational medications may develop the secondary complications. The patient with family history of diabetes and hypertension need more care. Thus it is understood that hypertension and diabetes should be treated seriously to avoid the complications.

Keywords: Diabetes, retinopathy, cardiopathy, stroke, hypertension.

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INTRODUCTION

Diabetes Mellitus (MD) Type II has affected more than 240 million people worldwide and significantly contributing to global burden of vascular diseases (International Diabetes Federation et al., 2006). It is increasingly rapidly worldwide (King H et al., 1998). Relative or absolute lack of insulin causes hyperglycemia. That is major contributor of the secondary complications; retinopathy, cardiopathy, nephropathy, neuropathy, hypertension, vascular disease etc. Irrespective of variant glucose levels, the United Kingdom Prospective Diabetes study (UKPDS) acknowledges the fact of higher risk of coronary heart disease (Steven RJ et al., 2001). Coronary heart disease is leading cause of death in the world and will retain at tope position till 2025 (WHO,2003). This is also hypothesized that elevated glucose level results in the formation of advanced glycation end products (Beisswenger et al., 1995). These macromolecules are supposed to be responsible of many vascular diseases in DM (Brownlee, et al., 2006). Intensive glucose control reduces the microvascular complications(Ohkubo Yet al., 1995), (ACG, 2008). Furthermore; the new guidelines emphasized the multifactorial approach for the control of glucose and blood pressure (Gaede P. et al., 2003) in type II diabetes (IDF Clinical Guidelines Task Force.,2005). Early diagnosis of hypertension and diabetes may ameliorate the prognosis of the disease. Both disease are inter-related and should be aggressively treated to improve the quality of life and minimize the secondary complications.

Haemoglobin undergo glycosylation at the valine position of amino acid to form glucose valine adduct named HbA1c (Brownlee,M. et al.,1995). HbA1c levels are considered as strong tool for diagnosis of diabetes (Buell C.et al., 2007). It is evident from the studies of diabetic patients that diabetes after few years of diagnosis developed secondary diseases, which doubles the mortality rate. There are few adjunct drugs which should be aggressively given to the diabetic patients to avoid these secondary complications.

Therefore; we have aimed this case report to elaborate that if patient follow the recommended adjunct medications, secondary complications could be minimized. We also have tried to elucidate the rational use of antihyperglycemic and antihypertensive agents with some supportive drugs in patients with both associated diseases.

CASE REPORT

A 51 years old woman was presented in hospital with complaint of frequent and intensive chest pain during working time since the last 2-3 days. She was normal and busy in her life when felt radiating pain in left arm along with sweating. Her past medical history showed diabetes since the last 10 years and hypertensive since 5 years along with family history of diabetes and hypertension. She was non smoker, non alcoholic with normal diet pattern. Initially she tried to manage her disease by control the diet for 4-5 years and then started Tab. Glucophage (Metformin) 250 mg in morning and 500 mg at bed time. After that she felt headache and neckache. The clinical finding indicated hypertension. Physician recommended Tab. Herbesser (Diltiazem) as antihypertensive agent. Then she was being felt leg pain with frequent urination along with angina and admitted in emergency department. Clinicians set the clinical goals to regularize/ optimize her type II diabetic (regular therapy), hypertension and other cardiovascular complications. All laboratory findings were normal except blood sugar level of 242 mg/dl. On basis of her clinical findings and angiography the medications were recommended as; Tab Lowplat (Clopidogrel) Tab Ulcenil, Tab Disprin CV 300 mg, Tab Herbesser 30 mg tid, Tab Nitromint, tab Vastarel MR bid and Atorvastatin 20 mg (generic brand) for 4 weeks. Patient was advised to visit again after 4 weeks with blood and ECG reports. She was in contact with her physician and complaint chest pain. After 6 months, angioplastic report showed the same results. She was again admitted in same hospital for medical check up and angiographic procedures and discharged with follow up therapy of above mentioned medication except antihypertensive agent Caversel Tablet (Metoprolol). There was no Atorvastatin prescribed. Her blood glucose level does not remain normal and blood pressure is controlled well..

DISCUSSION

The case study under discussion reported that the patient was initially on diet control for DM then started glucophage tablets. It is well established that diabetes may cause hypertension which is complication of the DM when not treated properly. Hypertension itself can be transmitted to next generation. A family history of hypertension may increase the chance of hypertension in offspring (Richard, 2007). So both the diseases are now present in this patient so chances of all secondary complication are now more prominent as compared to initial stages of diabetes. At this stage of pathological condition patient must be treated with regimen like regular medicines and supportive medicines.HbA1c level should be monitored at the time of diagnosis of the diabetes. It was matter of great importance that after M.I patient should be treated with selective beta-1 blocker at lower doses because beta -1 selective blocker reduces the severity and frequency of M.I. (Richard, 2007).At high doses beta blocker loses its selectivity and becomes non-selective. Another point of concern is that it is well documented that use of clopidogrel and atorvastatin enhances the life of stent that is passed by intervention. Atorvastatin should be recommended for longer period of time to enhance the life of stent and improve the quality of life by preventing the patient from secondary complications. According to CARDS trial(Cardiovascular atorvastatins diabetic studies) every diabetic patient should be treated with atorvastatin 10 mg with or without high cholesterol level so as to avoid secondary complications. The conclusion of CARDS show that atorvastatin 10 mg daily leads to a reasonable reduction (37%) in major cardiovascular events in patients with type 2 diabetes with no history of cardiovascular disease and without high LDL-cholesterol concentrations; this drug also reduced the risk of stroke (48%). The treatment effect did not vary by pretreatment cholesterol amount. On-treatment LDL cholesterol concentrations were substantially lower than current target amounts in most treatment

guidelines, and no safety concerns were raised.(Haffner SM et al., 2004)(Grundy SM et al., 2004).It is matter of great concern that no atorvastatin is recommended after angioplasty as a result of this patient again admitted with chest pain.It is quite obvious that if patient is not treated with proper medication then after cardiopathy there might be any other complication waiting for its turn to play its role.

CONCLUSION

In nutshell; it is evident that patient was gradually moving towards complications. The diet control may induce secondary complications after some certain time period. The patient with family history of diabetes and hypertension need more care. Furthermore hypertension may induce angina eventfully and aggressive attention for diabetes (primary root cause) may mitigate the development of secondary complication of disease. Thus it is concluded and understood that hypertension and diabetes should be treated seriously to avoid the secondary complications.

RECOMMENDATION

The following recommendation may help to minimize the development of secondary complications.

1 Follow the proper guide lines of reliable resources.

2 Atorvastatin 10 mg (Lipitor) should be recommended at the start of disease to avoid the development of secondary complications as recommended by Cardiovascular Atorvastatins Diabetic Studies (CARDS) trials.

3 Beta blocker may be recommended in angina but should be the least priority in hypertension as mentioned at NICE (National Institute of Health & Community Education) guidelines. Selective beta-1 blockers become non selective because at high dose and may cause bronchoconstriction and dyslipidemia, mask the hypoglycemic symptoms and introduce new onset of diabetes.

4 Thus; beta-blocker should not be given to diabetic patients even in hypertension associated with diabetes.

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