A study was presented in the conference which was intended to see the efficacy and safety of sitagliptin as monotherapy or combination therapy (with metformin) in Bangladeshi patients with type 2 diabetes during holy Ramadan. The present study found significant improvement in glycemic status in patients who treated with sitagliptin during Ramadan.

It is estimated that around 40 to 50 million individuals with diabetes worldwide fast during Ramadan. Another study noted a 7.5-fold increase in the incidence of severe hypoglycemia during Ramadan in patients with type 2 diabetes. Dipeptidyl peptidase-4 (DPP-4) inhibitors are associated with a low risk of hypoglycemia in patients with type 2 diabetes. The present study intended to see the efficacy and safety of sitagliptin as monotherapy or combination therapy (with metformin) in Bangladeshi patients with type 2 diabetes during holy Ramadan.

A 16 weeks multicenter, open label, non-randomized observational study was carried out from May-August 2014 to see the efficacy and safety of sitagliptin in T2 DM patients during holy Ramadan. One hundred ninety six newly detected type 2 diabetic Muslim patients were selected before two months of Ramadan. Patients aged above 18 years and were planning to observe fast in Ramadan, whose duration of diabetes is less than 6 month with HbA1C below 9% and received diabetes education on diet, medication and exercise for Ramadan and also gave informed written consent were included in this study. Patients who had type 1 DM, had cardiac, renal or hepatic impairment; uncontrolled hypertension, severe diabetic complications, other endocrine disease, did not keep fast, contraindication to treatment with sitagliptin, pregnant and lactating mother were excluded from this study. Patient who had uncontrolled blood glucose (HbA1C >7% but <9%) with Metformin alone, sitagliptin 50-100 mg was added to control diabetes. Those who were on Sitagliptin alone with control of diabetes were continued. Finally 178 patients completed the study. Eighteen patients (18) were lost from the study before Ramadan due to unwillingness (64), failure to follow-up (13) and transfer to another drug (01) before Ramadan. In our country, sitagliptin is found in different names. Their sources of origin are also different. So we selected Glipi (sitagliptin) or its combinations Glipi M (sitagliptin-metformin) for standard drug manifestation. A significant change was found from baseline in fasting plasma glucose and 2hour-after breakfast at 12th week treatment with sitagliptin as monotherapy and sitagliptin and metformin combination therapy. The level of HbA1C (%) was 8.02±1.28 before and then after treatment the post Ramadan value was 7.22±0.91.

Slight decrease in blood pressure, serum creatinine, SGPT and slight increment being observed in BMI from baseline to post-Ramadan in patients who were treated with sitagliptin, whereas there was greater increase in BMI with sitagliptin & metformin combination therapy group. Although not investigated, a lesser food or carbohydrate intake associated with fasting and physical activity could be a reason for differential effect of both treatments on weight. The changes were also observed in blood pressure, FPG, HbA1c, serum creatinine and SGPT between sitagliptin and sitagliptin with metformin combination group but not significantly.

Treatment with sitagliptin was well tolerated in this study. The incidence of hypoglycemia in the sitagliptin group was found to be zero. Pharmacological therapy with GLP-1 has been associated with gastrointestinal adverse experiences, including nausea, vomiting and diarrhea. In the present study, the incidence of gastrointestinal adverse experiences was very low. Treatment with glipi had a neutral effect on serum creatinine.

So, this study concludes that sitagliptin appears to be an attractive treatment option for Bangladeshi patients with type 2 diabetes mellitus who are fasting during Ramadan.
Diabetes Drug may Reduce Heart Attack Risk in HIV Patients

In patients with HIV, a diabetes drug may have benefits beyond lowering blood sugar. A new study from researchers at Washington University School of Medicine in St. Louis suggests the drug may prevent cardiovascular disorders because it works to reduce inflammation linked to heart disease and stroke in these patients. Although infection with Human immunodeficiency virus (HIV) is no longer a death sentence, people with the virus have an elevated risk of heart attacks and diabetes, and disorders with glucose, insulin and cholesterol. Part of what derives that risk is chronic inflammation. In the new study, the researchers found that the diabetes drug sitagliptin both improved metabolism and reduced inflammation in HIV-positive adults taking antiretroviral therapy. The findings was published in The Journal of Clinical Endocrinology & Metabolism. “The goal has been to identify treatments that not only address problems with blood sugar and lipids but also can lower inflammation, which can play a substantial role in heart disease and stroke,” said the researcher. “With sitagliptin, sugar levels fall, and several markers of immune activation and inflammation were reduced, indicating the drug may provide long-term benefits for these patients’ hearts, bones and livers.” Standard diabetes therapies have been tried in HIV patients and have been somewhat successful but did not completely normalize blood sugar, insulin and lipid levels, and other indicators of heart and metabolic health. The new, eight-week study of sitagliptin was the second study of the drug in people with HIV. The first study involved 20 patients and focused on whether sitagliptin was safe.

This time, researchers wanted to see whether the drug provided specific health benefits. They studied 36 HIV patients, ages 18-65, who were on antiretroviral therapy and whose immune status was stable. At the start of the study, the researchers measured subjects’ glucose levels, insulin sensitivity, lipid levels, immune cell counts, several markers of inflammation and other indicators of health. Identifying treatments for these patients can be difficult, mainly because of potential interactions with HIV drugs. Half of the study subjects then took sitagliptin for eight weeks, and the others received a placebo. Meanwhile, everyone in the study continued with antiretroviral therapy. “We wanted to know whether this drug would improve patients’ blood-sugar problems and reduce the immune markers that we believe are indicators that something is activating the immune system and causing inflammation,” said the researcher. “And that’s what we found.” Longer-term studies are needed to learn whether lower markers of inflammation after eight weeks of treatment can lead to lower risk for heart attacks and metabolic disorders, but the preliminary signs are promising.

Obese Adults with Type 2 Diabetes Benefit from Diet, Exercise

Healthier diet and routine physical exercise help older overweight and obese adults with Type 2 diabetes improve glucose control, body composition, physical function and bone quality, according to preliminary findings of an ongoing clinical trial. The six-month results of the one-year study is presented in the annual meeting of the Endocrine Society, in Boston. Diet and exercise, known to benefit patients with Type 2 diabetes, are controversial treatments for older adults due to concerns over frailty and age-related loss of muscle mass. No specific guidance is available for effectively modifying the lifestyle of adults with diabetes who are 65 years of age and above. “Type 2 diabetes is highly prevalent in older adults due to the physical inactivity associated with advancing age as well as the obesity epidemic. Obesity worsens the metabolic and physical complications of aging that impair quality of life,” said lead study author. The researchers examining the effects of behavioral weight-loss diet therapy and exercise training in older overweight and obese adults with Type 2 diabetes. Over the past six months, they have been randomly assigning volunteers between 65 and 85 years of age to receive either intensive or limited interventions. Participants in the intensive intervention group attend 90-minute aerobic and resistance exercise classes three times a week as well as a diet class once a week where they learn healthier eating habits. They record all food, drink, calories and proteins consumed and can receive individual weight-loss counseling. Control group participants are not given any exercise program and receive only once-a-month diabetes educational sessions. At the six-month mark, all study participants have preserved their lean body mass; but the intervention group’s body weight and fat mass have dropped more than the control group’s, and the intervention group’s physical performance test and peak aerobic capacity have improved more. Glycated hemoglobin (HbA1c), an indicator of blood glucose control, has improved more in the intervention group. Trabecular bone score, a measure of bone texture that helps predict fracture risk, has improved among those receiving the intervention but not among the controls. “If our results are confirmed, these encouraging findings may be used to formulate concrete recommendations about healthy lifestyle changes in older diabetic patients. Long-term studies involving a larger sample are needed to follow up on these results and examine underlying mechanisms,” the researcher concluded.

Calcium Channel Blockers Lower Fasting Glucose in Diabetes

Calcium channel blockers (CCB), especially verapamil, use linked to lower fasting blood glucose levels in adults with diabetes. For adults with diabetes, CCB use is associated with lower fasting serum glucose levels, according to a study published in the journal Diabetes Research and Clinical Practice. The researchers used data from Region for Geographic and Racial Differences in Stroke (REGARDS) study participants enrolled between 2003 and 2007 to examine the correlations of CCB and verapamil use with fasting serum glucose. After adjustment for covariates, the correlations were examined for 4,978 adults with diabetes. The researchers found that 29.6% of participants were CCB users, of whom 3.4% were verapamil users. Compared with CCB non-users, CCB users had 5 mg/dL lower serum glucose in fully adjusted generalized linear models. Compared to CCB non-users, verapamil users had on average 10 mg/dL lower serum glucose, with considerably greater differences seen among insulin users: 24 and 37 mg/dL lower serum glucose among users of insulin and oral agents and users of insulin alone, respectively. “CCB and in particular verapamil use was associated with lower fasting blood glucose levels among REGARDS participants with diabetes,” the authors concluded.
Metformin Lowers Risk of Heart Disease Deaths better than Sulfonylureas

A new analysis of 204 studies involving more than 1.4 million people suggests that metformin reduces the relative risk of a patient dying from heart disease by about 30 to 40% compared to its closest competitor drug, sulfonylurea. The study, designed to assess the comparative -- not absolute or individual -- benefits and risks of more than a dozen FDA-approved drugs for lowering blood sugar in type 2 diabetes, is described in the journal Annals of Internal Medicine. Diabetes poses a growing public health threat, and most people will eventually need drug treatment. "Metformin looks like a clear winner," says the researcher. "This is likely the biggest bit of evidence to guide treatment of type 2 diabetes for the next two to three years". The researcher also added. The lead author on the meta-analysis, notes that cardiovascular fatalities -- heart attacks and strokes -- are major risks for people with uncontrolled blood sugar, but it has never been clear if one diabetes drug is better than another at lowering these fatalities. This review, provides a much-needed update to two previous analyses, the last one published in 2011. Since then, researchers have published more than 100 new studies comparing the effectiveness of various blood sugar-lowering drugs. Most of the studies were short term, with only 22 mostly observational studies lasting more than two years. Participants in the studies were generally overweight with uncontrolled blood sugar levels. Many studies excluded the elderly and those with significant health problems. When researchers did report that information, only 10 to 30% of participants were nonwhite. The new analysis not only looked at cardiovascular disease but also other drug effects, including glucose control, and common side effects, such as weight gain, hypoglycemia and gastrointestinal problems. Because the majority of patients with type 2 diabetes end up using multiple blood sugar-lowering drugs, the researchers also evaluated how the drugs performed when used alone or in combination. Among other findings, the new review revealed that DPP-4 inhibitors, a class of anti-diabetic drugs that were very new at the time of the 2011 review, were clearly less effective at lowering blood sugar levels compared to metformin and sulfonylureas. In terms of side effects, a new class of drugs known as SGLT-2 inhibitors, which work by shutting excess glucose out of the body through urine, caused yeast infections in 10% of users, a side effect unique to this drug. However, SGLT-2 inhibitors, along with another drug class known as GLP-1 receptor agonists, helped patients lose weight. Sulfonylureas, on the other hand, caused weight gain and resulted in the highest rates of hypoglycemia, among the oral medications. Cautioning that such meta-analyses can be limited because of differences in research protocols and measurements across studies, the researchers took steps to ensure that only studies using similar methods were combined. Overall, the results indicate that metformin works just as well, if not better, than sulfonylureas and diabetes drugs that have appeared on the market more recently. The researcher says the new findings are in line with the current recommendation that metformin be used as a first-line therapy. The real question arises, when patients and doctors must choose a second drug to be used in combination with the metformin. "The medications all have different benefits and side effects, so the choice of second-line medications must be based on an individual patient's preferences," says the researcher. Both the American College of Physicians and the Veterans Association plan to use these publications to update their guidelines. The cost of diabetes drugs is a major consideration when prescribing. While metformin is available as a relatively cheap generic, many newer drugs carry a hefty price tag.

Metformin Inhibits Progression of Pancreatic Cancer

Investigators may have uncovered a novel mechanism behind the ability of the diabetes drug metformin to inhibit the progression of pancreatic cancer. Massachusetts General Hospital (MGH) investigators may have uncovered a novel mechanism behind the ability of metformin to inhibit the progression of pancreatic cancer. In their report that has been published in the journal PLOS One, the research team describes finding that metformin decreases the inflammation and fibrosis characteristic of the most common form of pancreatic cancer. Their findings in cellular and animal models and in patient tumor samples also indicate that this beneficial effect may be most prevalent in overweight and obese patients. "We found that metformin alleviates desmoplasia -- an accumulation of dense connective tissue and tumor-associated immune cells that is a hallmark of pancreatic cancer -- by inhibiting the activation of the pancreatic stellate cells that produce the extracellular matrix and by reprogramming immune cells to reduce inflammation," says the study's co-senior author. "We also found these effects only evident in tumors from overweight or obese individuals, who appear to have tumors with increased fibrosis." The study focused on pancreatic ductal adenocarcinoma, the most common form of pancreatic cancer. Half of those diagnosed with this form of pancreatic cancer are overweight or obese, and up to 80% have type 2 diabetes or are insulin resistant. Diabetic patients taking metformin are known to have a reduced risk of developing pancreatic cancer; and among patients who develop the tumor, those taking the drug may have a reduced risk of death. But prior to the current study the mechanism of metformin's action against pancreatic cancer was unclear, and no potential biomarkers of response to metformin had been reported. The researchers first found that levels of hyaluronan, a component of the extracellular matrix, were 30% lower in tumor samples from overweight or obese patients who were taking metformin to treat diabetes than in those who did not take the drug. In an obese animal model of pancreatic cancer, those that received metformin had reduced expression of both hyaluronan and collagen-1 and fewer activated pancreatic stellate cells (PSCs). Studies in cultured cells identified the signaling pathway by which metformin reduces the production of hyaluronan and collagen-1 by PSCs and also prevents the recruitment of tumor-associated macrophages, which increase the inflammatory environment. In obese mouse models metformin treatment reduced levels of tumor-associated macrophages by 60% and reduced expression of genes involved in remodeling the extracellular matrix of tumor tissue. The tumors of animals treated with metformin also had reductions in a metastasis-associated change in cellular characteristics called epithelial to mesenchymal transition (EMT) and in the overall level of metastasis. These tumor-related effects of metformin appear to be independent of the drug's effects on metabolic pathways involved in glucose metabolism and body weight. "Understanding the mechanism behind metformin's effects on pancreatic and other cancers may help us identify biomarkers -- such as patient body weight and increased tumor fibrosis -- that can identify the patients for whom metformin treatment would be most beneficial," the researcher concluded.
Healthy Diet May Reduce High Blood Pressure Risk after Gestational Diabetes

Sticking to a healthy diet in the years after pregnancy may reduce the risk of high blood pressure among women who had gestational diabetes, according to a study by researchers at the National Institutes of Health and other institutions. The study was published in the journal *Hypertension*. "Our study suggests that women who have had gestational diabetes may indeed benefit from a diet rich in fruits, vegetables, and whole grains and low in red and processed meats," said the study's senior author. Obesity is a risk factor for high blood pressure. But obese women in the study who adhered to a healthy diet had a lower risk of high blood pressure, when compared to obese women who did not. Gestational diabetes results in high blood sugar levels, which can increase the risk of early labor and a larger than average baby. For most women with the condition, blood sugar levels return to normal after birth. However, later in life, women who had gestational diabetes are at higher risk for type 2 diabetes and high blood pressure. In an earlier study, the researcher reported that a healthy diet after gestational diabetes reduces the risk for Type 2 diabetes.

To conduct the study, the researchers analyzed the health histories of nearly 4,000 women participating in the Nurses' Health Study II, part of the Diabetes & Women's Health study. Every four years, study participants responded to questionnaires on their eating habits. When appropriate, the researchers categorized the women's responses according to three healthy dietary approaches: the Alternative Healthy Eating Index, Mediterranean-style Diet, and the Dietary Approaches to Stop Hypertension (DASH). These approaches emphasize consumption of nuts, legumes, whole grains and fish, and limit consumption of red and processed meats, salt, and added sugars. After they statistically accounted for smoking, family history, and other factors known to increase high blood pressure risk, the researchers found that women who adhered to a healthy diet were 20% less likely to develop high blood pressure than those who did not. "Our study shows that a healthy diet is associated with decreased high blood pressure in an at-risk population," the researcher concluded.

Depression May Compound Risk of Type 2 Diabetes

Depression may compound the risk of developing type 2 diabetes in people with such early warning signs of metabolic disease as obesity, high blood pressure and unhealthy cholesterol levels, according to researchers. While previous studies have pointed to a link between depression and diabetes, the new findings, published in the journal *Molecular Psychiatry*, suggest that when depression combines with metabolic risk factors the risk of developing diabetes rises to a level beyond the sum of its parts. "Emerging evidence suggests that not depression, per se, but depression in combination with behavioral and metabolic risk factors increases the risk of developing type 2 diabetes and cardiovascular conditions," said the researcher. The aim of this study was to evaluate characteristics of individuals with both depressive symptoms and metabolic risk factors. The four-and-a-half year study divided 2,525 participants in Quebec, aged between 40 and 69, into four groups: those with both depression and three or more metabolic risk factors; two groups, each with one of these conditions but not the other; and a reference group with neither condition. In a departure from previous findings, the researchers discovered that participants with depression, alone, were not at significantly greater risk of developing diabetes than those in the reference group. The group with metabolic symptoms but not depression was around four times more likely to develop diabetes. Those with both depression and metabolic risk factors, on the other hand, were more than six times more likely to develop diabetes, with the analysis showing the combined effect of depression and metabolic symptoms was greater than the sum of the individual effects.

The researchers believe depression, metabolic symptoms and the risk of developing diabetes interact in a number of ways. In some cases, a vicious cycle may emerge with depression and metabolic risk factors aggravating one another. Evidence shows people suffering from depression are less likely to adhere to medical advice aimed at tackling metabolic symptoms, whether it be taking medication, quitting smoking, getting more exercise or eating a healthier diet. Without effective management, metabolic symptoms often worsen and this can in turn exacerbate the symptoms of depression. Beyond these behavioral aspects, some forms of depression are associated with changes in the body's metabolic systems which can lead to weight gain, high blood pressure and disorders with glucose metabolism. Meanwhile, some anti-depressant medications can also cause weight gain. The researchers emphasize that not all cases of depression are the same -- only some people with depression also suffer from metabolic problems. When it comes to improving health outcomes, identifying those patients who suffer from both depression and metabolic symptoms as a subgroup and adopting an integrated treatment approach may be crucial to breaking the cycle. "Focusing on depression alone might not change lifestyle/metabolic factors, so people are still at an increased risk of developing poor health outcomes, which in turn increases the risk of developing recurrent depression," said the researcher.