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DiabetesWatch

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Is there any relationship between birthweight and weight during childhood and adult life? With diabetes? With hypertension? With dyslipidemia? With coronary heart disease?

Epidemiological studies have revealed strong links between various markers of reduced intrauterine and early postnatal growth and the susceptibility to diabetes, hypertension, hypertriglyceridemia and the insulin resistance syndrome in adult life. The early studies from Sheffield in the United Kingdom showed that it is people who were small at birth because they failed to grow, rather than because they were born early, who are at increased risk of chronic disease. The markers for reduced intrauterine growth is birthweight and

Babies with Retarded Fetal Growth vs Large for Gestational Age

Mary Anne Lim-Abrahan, MD
UP - PGH

weight at one year of age for reduced early postnatal growth.

The studies from Sheffield and Hertfordshire, United Kingdom showed an increased risk of stroke and coronary heart disease with low birthweight. The association between low birthweight (<5.5 lbs or 2.5 kg) and coronary heart disease has been confirmed in the US with the Nurses Study and in a South Indian population. The trends in coronary heart disease with low birthweight has been found to be parallel to similar trends in diabetes and hypertension.

The mechanism linking low fetal growth with adult diabetes is not known. However, there is evidence that growth retarded babies become insulin resistant in adult life and thus predispose them to becoming diabetics.

Fetal nutrition is determined by the combination of the mother's food intake, her nutrient stores and delivery to and transfer across the placenta (quality and quantity) for growth and vascularization. It is thought that babies who are born thin have become under-

nourished during the second and third trimester. In fetal life, the tissues and body organs go through periods of critical development, which may coincide with periods of rapid cell division and multiplication. In response to undernutrition, the fetus adapts by making certain physiologic metabolic and hormonal adaptations.

The fetus can adapt by decreasing cell division. The fetus can also decrease its dependence on glucose and rely more on other nutritional substances like amino acids. This then leads to alterations in the concentrations of fetal and placental hormones which influence growth. Even brief periods of undernutrition may permanently reduce the numbers of cells in particular organs and

(Continued on page 3)

PDA ANNUAL CONVENTION

The theme of this year's Philippine Diabetes Association Annual Convention is "Yesterday's Discoveries, Today's Realities and Tomorrow's Opportunities". The two day affair from November 25-26, 1999 at the Century Park Hotel Manila involves noted local and foreign speakers who will highlight the newest therapeutic options available for Type 2 DM, cardiovascular complications, prevention trials, lipid management, hypertension, obesity and diabetes in pregnancy. These updates are sure to be invaluable for physicians and patients alike.

Alam Ng Langgam

Last July 25-31, 1999 the Philippine Center for Diabetes Education Foundation, headed by its president, Dr. Augusto D. Litonjua, and the Philippine Diabetes Association, headed by President Dr. Lina Lantion-Ang, led the nation in its annual celebration of Diabetes Awareness Week. The theme for this year's celebration was "Alam ng Langgam!"

As in previous years, the week-long activities began with a General Assembly of all participating diabetes centers, their patients and diabetes educators, at the QUAD Glorietta. Special Guest of Honor was Undersecretary of Health Dr. Susan

Pineda-Mercado, who delivered the inspirational message. A lively and exciting dance contest participated in by diabetic patients followed. The winners were as follows: Makati Medical Center, first place; AFP

Medical Center, second place; Perpetual Help Medical Center, Biñan, third place.

During the week, many other activities to promote awareness and prevention of diabetic complications were conducted. Among them

(Continued on page 4)





Una C. Lantion-Ang, MD
PDA, President

Caring For Special Diabetics

All diabetic patients are SPECIAL.....but in this issue of the DiabetesWatch, the pregnant diabetic and the diabetic going to surgery are EXTRA SPECIAL.

Advances in Diabetes Technology to monitor the metabolic status of these special patients have optimized out-

comes of Pregnancy and Surgery. These tools are: Self-Monitoring of the Blood Glucose (SMBG) using glucose meters with memory; measurements of glycated proteins (HbA1C; fructosamine), a reflection of glucose control over time; and improvements in insulin regimens and insulin de-

livery systems.

Allowing a woman to participate actively in the management of her pregnancy through SMBG throughout gestation has led to a greater understanding and motivation for strict glucose control during pregnancy, fewer hospitalizations and delivery interventions and more importantly, improvement in maternal and fetal outcomes in pregnancy complicated by gestational diabetes mellitus.

While the surgical patient may not be able to adhere to strict glycemic control like the gestational diabetic, blood glucose monitoring is useful in the immediate pre-op, intra-op and post-op periods and during emergency situations where "acceptable glucose control" maybe the more practical approach rather than delaying the benefit of surgery.

Newer insulins and insulin delivery systems such as insulin pens are accurate, convenient and safe for intensifying glycemic control in these special patients and when combined with SMBG, hypoglycemia is avoided and adverse outcomes are reduced significantly.

Medical nutrition therapy has been liberalized to provide for growth and development of the fetus without compromising metabolic control of the mother.

Post-op patients whose nutritional requirements are adequately met can cope better with post-op infections and wound healing.

As the patient wakes up from anesthesia or the mother hears her baby's first cry, both will smile at a NEW LIFE cradled by people who cared for them at such a special time.

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PDA COUNCIL IN FOOTCARE

The organizational meeting of the Foot Council under the Philippine Diabetes Association was held last August 26 at the Sulu Hotel. The highlight of the meeting was an informative talk on "Surgeries in the Diabetic Foot" which was delivered by Ma. Cecilia Garcia, Doctor of Podiatric Medicine. Dr. Garcia discussed the various types of corrective surgeries which can be performed for diabetics with foot problems so as to lessen the risk of amputation.

The vision of the Foot Council is the prevention of lower limb amputations in the Filipino diabetic through the promotion of comprehensive footcare services which includes the identification of the high risk foot, proper management of diabetic foot problems, education of patients and health

care providers and research.

Various activities are planned for the year 2000 including state of the art lectures, foot modules for the PDA workshop, continuing education on various aspects of the diabetic foot, a pre-annual convention one day symposium and a one day meeting for the formulation of national consensus guidelines.

Membership in the Foot Council is open to PDA members who are actively involved in the management of patients with diabetic foot problems.

The officers of the Foot Council are: Dr. Ma. Teresa P. Que, Chairman; Archie Entienza, RN, Vice-Chairman; Faith Yrac, RN Secretary; Dr. J. Yanga, Treasurer; Susan Trinidad, RN, Auditor and Joel Jacalan, RN, PRO.

MEANDERINGS...



Is SURGERY THAT FEARSOME FOR DIABETICS?

Augusto O. Litonjua, MD, Editor Emeritus

For the Type 1 diabetic, he is already on insulin, and the medication is continued during and after surgery with some modifications of administration. On the other hand, the use of insulin will depend on the type of operation in the Type 2 diabetic patient. Those who will undergo minor surgery need not change whatever medical program he is on. It is only in those where the surgical procedure is 'major' - those requiring general anesthesia, that the oral tablets will have to be changed to insulin in the immediate period before the surgery, during and after the surgical procedure. When the patient is able to take in food by mouth, then the insulin may be discontinued and the pre-operative medications reinstituted.

Therefore, if surgery is necessary, patients nowadays can submit to it, with a little more special care than in the non-diabetic. But, the outlook is far brighter now for the healing of wounds and the complete recovery of the patient.

When surgery is proposed to a patient with diabetes, the initial response is almost one of shock - "But, doctor, I am a diabetic! My wound may not heal!" But diabetic patients are subjected to more surgical conditions than those without diabetes. Let's mention a few facts. Diabetes is more prevalent in the 40 to 50 year age group, - an age where many surgeries are being performed for one reason or another. Then, there too is the fact that the diabetic state predisposes one to the risk of surgical diseases more than

the general population. There is the effect of diabetes on the blood vessels of the heart which get clogged up. More patients with diabetes are undergoing bypass surgery than those who have normal blood sugars. There is no more danger to the operation in the diabetic than in the non-diabetic. The diabetic state confers on the patient a lot more surgical conditions peculiar to the disease.

What have changed over the past years that favor the better outlook for surgery in the diabetic patient? Surgeons are more skilled these days and operations are performed at a faster pace. Anesthesiologists are more aware of the special problems of the diabetic patient, and they have drugs that will not disrupt the metabolic state of the patient as much as the

older drugs did. The internist or the diabetologist or the endocrinologist who is the partner of the surgical team is now more knowledgeable of the metabolic aberrations of diabetes, and can now better cope with them. Thus, the current methods of management including more potent antibiotics have greatly improved the outlook of the patient during surgery and the days following the surgical procedure, which in the past created problems such as: diabetic acidosis, non-ketotic hyperosmolar coma, non-healing wounds and the like.

If patients do agree to a surgery, another of the most frequently asked questions is, - will I be placed on insulin? And if so, will the use of insulin be permanent?

Babies with retarded...

(from page 1)

permanently change or "program" the body.

The thin neonate lacks skeletal muscle and fat, and muscle is the main peripheral site of insulin action. In fetal life, insulin is important in muscle growth. With undernutrition, the muscles become resistant to insulin and therefore muscle growth is sacrificed, but the brain is spared. The changes set in motion during fetal life are to a certain extent "hard-wired" into the offspring.

In 1992, Hales and Barker proposed the "thrifty phenotype" hypothesis to explain these observations. The growth of the fetus is altered by its nutritional environment. The changes in fetal growth that have evolved to aid fetal survival led to selective changes in the growth rates of specific organs, and adaptations in fetal

metabolism. These adaptations that were beneficial to the fetus for survival during periods of undernutrition, then becomes a liability in adult life when nutrition is abundant and obesity occurs in adult life.

On the other hand, what about the big babies born to mothers with undiagnosed/poorly controlled gestational diabetes mellitus (GDM)? Studies have also shown that these babies are prone to be obese as a child and that about 20% already have impaired glucose tolerance at age 15. The abnormalities progress into adult life and increases the likelihood for developing Type 2 diabetes. Diabetes begets diabetes. A number of studies have found U-shaped associations between birth measurements and coronary risk factors. Therefore, the importance of good pre-natal care cannot be over-emphasized.

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DiabetesWatch

DIABCARE ASIA-The Philippine Report

Una C. Lantion-Ang, MD and the Diabcare-Asia (Philippines) Study Group

The aim of the Diabcare-Asia project was to collect data on diabetes control, management and complication status among patients in 12 Asian countries including the Philippines. A total of 34 diabetes centres from four regions (Metro Manila, Luzon, Visayas and Mindanao) in the Philippines participated in the study between July and September 1998. Information was extracted from the medical records, interviews and laboratory assessment. Of the 3061 patients recruited, 90% constituted the statistical analysis population. The majority (96%) of patients studied were diagnosed with type 2 diabetes mellitus, with mean age ($\pm$ SD) of 59.3 $\pm$ 12.5 years and mean diabetes duration of 9.4 $\pm$ 7.0 years. Overall mean BMI was 24.7 $\pm$ 4.9 kg/m² and majority (60%) had BMI < 25 kg/m². Majority (70%) of the patients were treated with oral antidiabetic drugs (OADs),

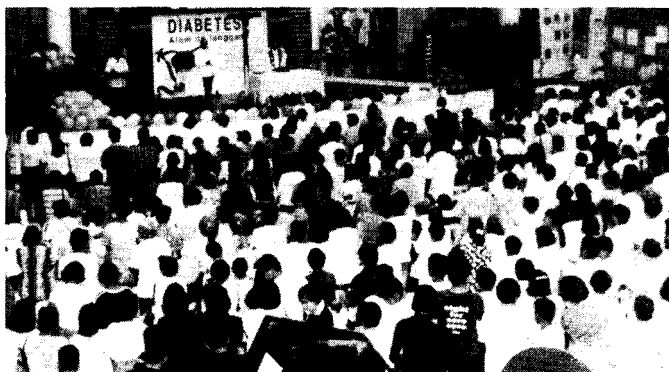
15% with insulin, 10% with insulin and OAD combination therapy and 5% with diet control. Among patients treated with OADs, majority (45%) received two or more medications. Glucose self-monitoring (either urine or blood) was only practiced by 50% of patients. Mean HbA_{1c} (as assayed by BioRad Variant) was 8.9 $\pm$ 2.0% and majority (73%) had HbA_{1c} > 7.4% (1% above the upper limit of normal range, 4.7-6.4%). Mean FBG was 8.8 $\pm$ 3.7 mmol/l and 50% had FBG > 7.8 mmol/l. Of all the patients who were screened for diabetes complications, cataract (26%), neuropathy (42%) and cerebral stroke (6%) were the most frequently reported eye, feet and severe late complications. In conclusion, our preliminary study outcomes show the potential of using such new data for obtaining a better overview of diabetes management profile and clinical profile of diabetic patients in the Philippines.

ng... (From page 1)

were: "Operation: Silip Mata," now on its third year; "Operation: Bantay Paa," a foot care and assessment project, now on its second year; and the newly launched "Operation: Kidney Watch," designed for early detection of diabetic renal diseases. To promote increased awareness

of diabetes among the youth, the diabetes educators conducted lecture sessions among high school students at various public schools in Metro Manila.

In charge of this year's activities were: Chairperson Dr. Josephine C. Raboca, and members, Dr. Cynthia H. Manabat, Mrs. Susan Trinidad and Mrs. Imelda Cardíño.



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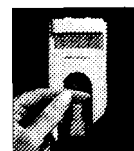
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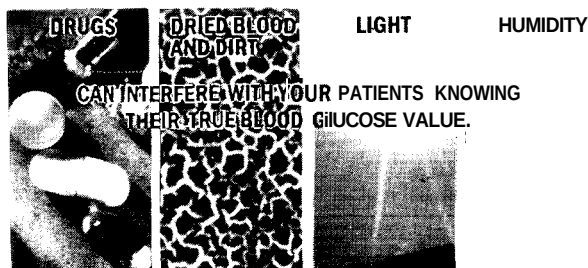
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WHY A CERTIFICATION PROGRAM?

Susan B. Trinidad, RN, Makati Medical Center

The Philippine College for Diabetes Educators Inc. is pleased to announce that the first certification exam for diabetes educators will be given next year. This exam is meant for health care professionals who already have a certain amount of experience in diabetes education and whose experience and knowledge extend to a wider base than just their own area of professional practice. These criteria exist because the questions are multidisciplinary to reflect the nature of the questions and concerns presented to educators.

Getting involved in a refresher course is a bonus all on its own. Attending the National Assembly for Diabetes Educators held annually, is the best step one can do to help him in the exam.

Preparing for an exam (written and oral) gives you real incentive to keep up with the

current trends in diabetes education. Recognition in this very specialized area is considered an achievement a diabetes educator should strive for. It is a must that all diabetes educators are consistent in the information that they share with people who have diabetes. And certainly, CERTIFICATION promotes that STANDARDIZATION we are aiming for.

With the continuing support and feedback from Diabetes Educators nationwide, our faculty strives to meet and exceed our mandate.

Join your colleagues to celebrate achievement, learn, share and commit yourself in the fight against diabetes.

Let's all take the challenge and GET CERTIFIED!!!

For details, please contact:

The Diabetes Center at tel# 893-6070, or visit us at Rm. 366 Diabetes Educational Clinic, Makati Medical Center.

10th Congress of the ASEAN Federation of Endocrine Societies

This year the Endocrine Society of Thailand will host the 10th Congress of the ASEAN Federation of Endocrine Societies from December 1 to December 4, 1999. The congress will be held at the luxurious and scenic Montien Riverside Hotel. Plenary lectures, symposia and free paper presentations will emphasize the REGIONAL ADVANCES IN ENDOCRINE RESEARCH. Leading international and regional endocrinologists will share their opinions and ideas in their field of expertise. Dr. Mary Anne Lim-Abraham, PDA past president, will present the STATUS REPORT OF OSTEOPOROSIS IN THE PHILIPPINES on December 3, 1999 during the main congress symposium on Osteoporosis in ASEAN. Dr. Lina Lantion-Ang, PDA presi-

dent, will talk on the DIABETES MANAGEMENT IN ASIA during the luncheon symposium on December 2, 1999. Dr. Augusto D. Eitonjua and Dr. Araceli A. Panelo are invited to talk on the NECESSITY OF DRUG INTERVENTION FOR EARLY-STAGED DIABETES during the dinner symposium on December 2, 1999. On December 1, 1999, Dr. Lim-Abraham will also present the RESULTS OF PHILIPPINE TRIAL ON REPAGLINIDE during the pre-congress luncheon symposium.

Two days before the 10th congress of AFES, Dr. Laura Trajano-Acampado and Mrs. Susan Trinidad will represent the Philippine Diabetes Association in the IDF-WPR Diabetes Education Leadership Workshop on November 28-November 30, 1999.

Everything you always wanted to know about **DIA** were

Roberto C. Mirasol, MD
St. Luke's Medical Center

In past issues of Diabetes Watch we dealt at length on male sexual problems in diabetes. This issue will try to tackle the often forgotten aspect of female sexuality and diabetes. We hope to provide you with answers to your nagging questions.

Is pregnancy possible for the patient with diabetes? Indeed pregnancy is possible with diabetes. Optimal medical care is necessary to prevent early pregnancy loss and congenital malformations in infants of diabetic mothers. Your blood sugars need to be controlled closely with insulin (oral tablets are contraindicated during pregnancy) and you will need to monitor your sugars frequently.

What are the target blood sugars in pregnancy? The preprandial sugars must be between 70-100 mg/dl (3.9 - 5.6 mmol/l) or 1 hour postprandial < 140mg/dl (<7.8 mmol/l) or 2 hour postprandial < 120mg/dl (<6.7 mmol/l).

What are the risk of diabetes complications in pregnancy? Chronic complications such as eye disease (retinopathy), nephropathy (kidney disease), hypertension, atherosclerotic vascular disease, and neuropathy must be assessed even prior to planning a pregnancy. These are necessary to obtain baseline information about your diabetes.

What is done if you have kid-

ney disease and you get pregnant? If you have kidney disease, blood glucose and blood pressure must be controlled to optimize pregnancy outcome. Baseline renal function examination must be undertaken before conception and followed at regular intervals because of the impact of pregnancy on proteinuria, and the impact of renal insufficiency on fetal growth and development.

How about if you have eye disease? If you have retinopathy and you become pregnant, blood glucose control is again optimized and neovascularization is brought into remission prior to pregnancy. Diabetic retinopathy may accelerate during pregnancy. Baseline dilated eye examination is necessary before conception. You have to see your ophthalmologist for this.

What contraceptive method is best for my diabetes? The choice of which contraceptive method to prescribe must take into account your lifestyle demands as well as glycemic status and other possible coexisting medical conditions. Natural (rhythm, Billing's method), barrier methods (HID, diaphragm) or hormone therapy maybe used. It is best to discuss this with your obstetrician.

If hormone contraceptive therapy is desired, which is the best to use? If hormonal contraception is desired, the

preparation of combination oral contraceptives containing the lowest dose of progestine and estrogen are recommended. Progestine only hormonal contraception should be avoided, if possible, until more detailed data is available.

What should be monitored? More frequent follow-up and attention to blood pressure and weight gain in women using hormonal contraception is recommended. Periodic glucose testing should be performed regardless of contraception used. Blood pressure, blood

glucose and cholesterol levels are checked a month after starting pills and three to four months a year thereafter.

Will pills make my diabetes worse? Many studies have demonstrated that in healthy females there is a dose dependent deterioration of glucose tolerance and lipid profile with increasing progestin dosage and potency. Current low-dose combination preparations have been shown in prospective studies to have minimal effect on glucose tolerance.

(Continued on page 7)

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Many women continue to exercise during pregnancy. In fact, doctors and relatives advise it to increase strength and stamina during pregnancy and labor. But is exercise **really** safe for the pregnant woman and her fetus, especially if the pregnancy is complicated by diabetes?

The state of pregnancy may be considered a form of mild exercise, since the extra weight carried by the mother increases her energy expenditure and breathing capacity to a level equal to mild-to-moderate exercise. Hence, any additional physical activity during pregnancy can further help them maintain their level of fitness, moderate weight gain, increase both strength and stamina, and decrease back stress and anxiety. Being physically fit can make the burden easier to bear and will prepare them for the work involved with labor. However, in diabetic pregnant women (whether type 1 or type 2) the risk of exercise to pregnancy, including its negative impact on glucose control, should be emphasized. Exercise adds an additional variable that may make glucose control more difficult. If exercise is undertaken in pregnancies complicated by diabetes, the insulin doses need constant surveillance to assure the best possible control under the circumstance. If blood glucose levels are kept within four standard deviations of the levels of a pregnant woman without diabetes, studies have shown that exercise **does not** place the pregnant diabetic at higher risk for spontaneous abortion. The risk of spontaneous abortion rises dramatically in direct relation to the degree of hyperglycemia. Women with type 1 diabetes who have vascular complications or retinopathy should avoid exer-

EXERCISE... Is It SAFE FOR PREGNANT DIABETICS?

Rosa Allyn G. Sy, MD
Cardinal Santos Medical Center

cises that involve the Valsalva maneuver or arm exercises. Women with pre-existing or pregnancy-induced hypertension are advised **bedrest** to manage their **blood** pressure and are advised to avoid exercise.

Unlike women with pre-gestational diabetes, women who develop gestational diabetes during pregnancy are advised to **exercise** more since it can improve glucose intolerance and may obviate the need for insulin therapy. As such, exercise is an important and effective part of their treatment plan.

SAFE EXERCISE PROGRAM:

The safest form of exercise for pregnant diabetics is one which should not cause 1) fetal distress, 2) low infant birth weight and 3) uterine contractions. It would also appear logical to avoid exercise that produces maternal hypertension (blood pressure > 140/90 mmHg). Exercises that use the upper body muscles or place little mechanical stress on the trunk such as the arm ergometry training appeared safest (except for the hypertensive pregnant women). When excessive weight-bearing by the lower body is avoided, workload can be increased safely, permitting a cardiovascular workout without fear of fetal distress. Women should be taught to palpate their uterus during exercise and stop exercising if they detect contractions.

EXERCISE GUIDELINES FOR PREGNANT WOMEN:

The American College of Obstetricians and Gynecologists (ACOG) recommends the following exercise guidelines for women who are pregnant:

1. Regular exercise is better than occasional work-outs.
2. Warm up before and cool down after exercise to prevent injuries.
3. Don't overstretch or perform bouncing, jerky movements or quick changes in direction. As ligaments and joints relax to prepare for growth and delivery of the baby, you are more susceptible to **joint** and ligament injuries.
4. Drink plenty of fluids before and after exercising. Pregnancy increases your risk of dehydration.
5. Your heart rate should not go above 140 beats per minute during exercise.
6. Don't allow the **strenuous** part of your exercise routine to last longer than 15 minutes. As strenuous exercise time goes up so does the risk for injuries. You can participate in lower intensity exercises, such as walking, for up to 45 minutes. Stop exercising if pain or unusual symptoms appear.

AVOID THE FOLLOWING:

1. Exercise that involves lying on your back after your fourth month of pregnancy.
2. Exercise that involves straining or holding your breath.
3. Exercise that involves jerky movement.

4. Activity that causes rises in your core body temperature above 100 degrees such as exercising in extreme heat or taking saunas or whirlpool baths longer than 10 minutes - a rise in internal body temperature can harm the baby.

The paramount management goal for the best outcome of pregnancy is to achieve and maintain normoglycemia (normal blood sugar). This goal is best achieved with a properly supervised exercise program combined with frequent self-blood glucose monitoring to avoid exercise-induced hypoglycemia or hyperglycemia and additional calories to cover the exercise you plan to do.

PSEM Annual Convention

The Philippine Society of Endocrinology and Metabolism will have its annual convention on January 24 & 25, 2000 at the Edsa Shangri-la Hotel. The theme is "Endocrine Challenges in the 21st Century" and its aim is to elevate the practice of clinical endocrinology to the "state of the art" for the new millennium.

Seven local and seven international experts will tackle topics in lipidology, diabetes, nutrition, osteoporosis and thyroid disorders among others.

Start the new year right — register now! Call 633-6426 for details.

Everything...

(From page 6)

We have touched on some of your concerns regarding female sexuality. Watch out for Part 2 as we answer more questions. For comments, queries, suggestions, please fax to 723-3341.

Diabetes Watch

Many diabetics will need to undergo surgery at some time in their lives. This is because of the higher incidence of surgical conditions among diabetics such as cataracts, gall stones, heart disease requiring bypass surgery, gangrene, and other infections. They have a much higher risk of developing complications during surgery mainly because they often have concomitant heart and kidney diseases. Although wound healing may be a problem, it is usually not the cause of mortality but rather the accompanying vascular diseases that contribute to it. Hence the main cause of death is usually related to the heart, brain or the kidneys which are often affected in diabetics.

Pre-operative assessment of the diabetic patient prior to surgery usually includes a thorough evaluation of the heart and kidney status. In

SURGERY IN THE DIABETIC

Ruby I Go, MD, Chinese General Hospital

addition to a plain electrocardiogram, more detailed work-up including a stress test is often required in all diabetics with a long duration of the disease. Intraoperative cardiac monitoring should be done even in the absence of any symptoms. Hypertension should be adequately controlled prior to surgery. Kidney function should also be assessed and drugs which tend to have adverse effects on the kidneys should be avoided. Infections, especially in the lungs and kidney should be avoided. Since many diabetics tend to have electrolyte abnormalities, these should be checked and corrected. In addition to optimum control of blood sugar, adequate nutrition should be provided especially in those who have been chronically ill for sometime. A team approach which includes the diabetologist, the surgeon, anesthesiologist and cardiologist is usually recommended to ensure a successful surgical outcome. Both surgeon and anesthesiologist should be informed of the medical status of the patient and the complications that may occur during surgery. As much as possible, the surgery should be performed early in the morning so that the patient can be monitored closely postoperatively during the rest of the day. Very often, complications arise after

the surgery, including fluid imbalances, infections, heart problems or even strokes especially when patients are no longer closely followed. Most deaths which occur in the post-operative are related to the heart.

With the advent of modern technology, the availability of efficient facilities for adequate evaluation and the effective antibiotic treatment, many diabetics can undergo surgery successfully with minimal complications. With proper pre-operative evaluation, patients at high risk can be identified and advised accordingly, weighing the risks and benefit of the procedure in each individual patient. Emergency surgeries should not be delayed after adequate preparation whereas elective surgeries should be done only after the patient has been thoroughly assessed and treated.



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Safety has not been established.
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Breast feeding should not occur during therapy with gemfibrozil.
Side Effects:
Gastrointestinal complaints were the most frequently reported adverse reactions but were usually not severe enough to necessitate cessation of therapy.
Drug Interaction:
Should be used with caution in patients receiving anticoagulants (see Warnings).
Overdosage:
Overdosage with gemfibrozil—symptomatic and supportive measures should be taken.
Dosage and administration:
Recommended daily dose is 900 to 1200 mg in single or two divided doses. The 900 mg dose is given as a single dose one-half hour before the evening meal. The 1200 mg dose is given in two divided doses one-half hour before the morning and evening meals.

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Lopid**

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Gestational Diabetes Mellitus or GDM is diabetes diagnosed during pregnancy. This does not, however, exclude the possibility that diabetes was already present even before the pregnancy. It may have just happened that the diabetes was diagnosed during the pregnancy. It also does not mean that the patient will remain diabetic after pregnancy. Most patients will have normal glucose tolerance afterward, but remain at risk for developing diabetes at a later time.

In the U.S., approximately 4% of all pregnancies are complicated by GDM. Depending on the population studied and the diagnostic tests employed, the prevalence rate of GDM may range from 1 to 14% of all pregnancies. Thus, GDM is an important health problem that must be addressed.

Screening for GDM

The American Diabetes

GESTATIONAL DIABETES MELLITUS Screening and Diagnosis

Laura Trajano-Acampado, MD, UP - PGH

Association (ADA) recommends that screening be performed (unless otherwise indicated) between the 24th and 28th week of gestation in women meeting one or more of the following criteria:

1. > 25 years of age
2. < 25 years of age and obese (i.e. > 20% over desired body weight or BMI > 27 kg/m)
3. Family history of diabetes in first-degree relatives
4. Member of an ethnic/racial group with high prevalence of diabetes (e.g. Hispanic-American, Native American, Asian-American, African-American or Pacific Islander)

Pregnant women who do

not meet any of these criteria are at a lower risk for developing GDM and it is not cost-effective to screen such patients.

The screening test consists of a 50-g glucose load followed by plasma glucose determination 1 hour later. The patient need not fast before the test. A value of > 140 mg/dl 1 hour after the 50-g load necessitates a full diagnostic oral glucose tolerance test or OGTT which must be performed in the fasting state. Some authorities recommend proceeding to the diagnostic OGTT at the lower level of > 130 mg/dl because we may miss some cases of GDM utilizing the present cut-off value of 140 mg/dl.

Diagnosis

The ADA recommends the use of the 100-g 3 hour OGTT interpreted according to the diagnostic criteria of O'Sullivan and Mahan as modified by Carpenter and Coustan, for current glucose assay techniques as the diagnostic test for GDM. To make the diagnosis of GDM, 2 of the 4 plasma values obtained during the test must meet or exceed the values shown in the following table:

Diagnostic Criteria for GDM Using the 100-g 3 Hour OGTT

	Plasma Glucose (mg/dl)
Fasting	105
1 hour	190
2 hour	165
3 hour	145

The ASEAN Study Group
on Diabetes in Pregnancy

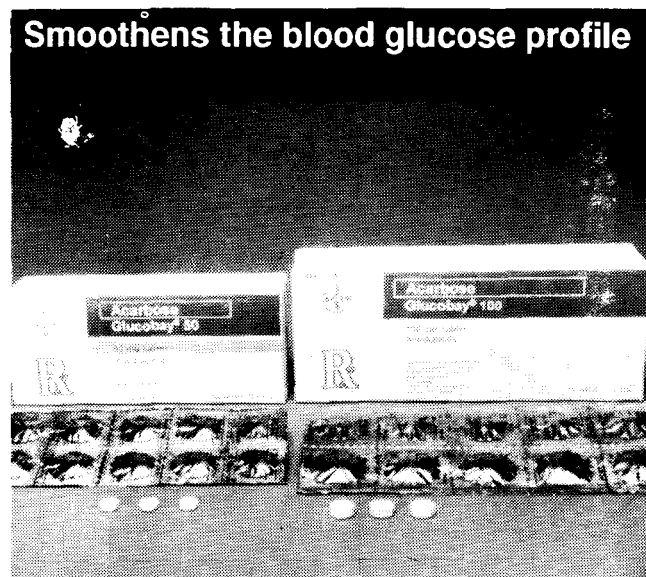
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INTERACTIONS: Cane sugar, sucrose, maltose, dextrin, and other carbohydrates may cause abdominal pain and diarrhea during Glucobay treatment because of increased fermentation of carbohydrates in the colon. Antacids, cholestyramine, and other drugs which may reduce the effectiveness of Acarbose. Glucobay (Acarbose) in combination with sulphonylureas or insulin may potentiate the hypoglycemic effect.

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DiabetesWatch

Planning the nutritional needs of a diabetic is exciting and mind-boggling...because it means meals that are varied yet confined to specific choices, flexible yet conforms to a given pattern, and liberal yet limited to some degree. What if the diabetic were also pregnant? Everything then becomes doubly challenging.

An individual guideline has to be formulated because needs and choices are different. Moreover, the present and the pre-pregnancy weights have to be considered in coming up with the total calorie (energy) requirement. Because of monthly weight increment, the allowances need to be adjusted. The nutritional plans should be able to sustain the changing needs of the pregnant woman, but at the same time keep the blood sugar (both in the fasting and the two-hour postpran-

Nutrition and the Pregnant Diabetic: A Double Challenge

Maria Imelda Q. Cardoño, MSFN, Makati Medical Center

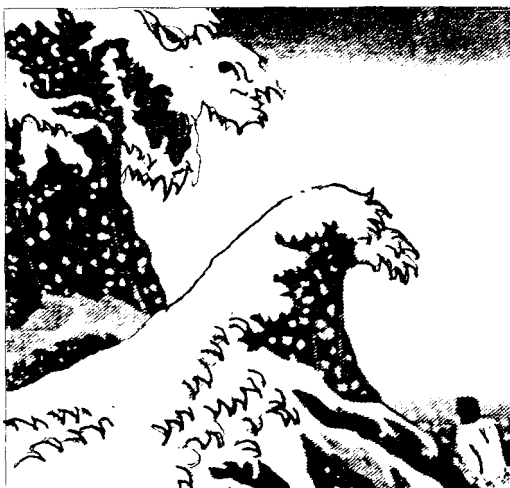
dial states) within normal. Definitely, one has to consult a nutritionist-dietitian for more specific recommendations but a general one is discussed here.

About half (50%) of the total energy requirements should be contributed by carbohydrates, mainly in complex forms with good fiber content such as: whole grain cereals, whole kernel corn, bran flakes, unpolished rice, whole wheat bread, pasta and other noodles. All meals (3 major meals and 3 snacks) should contain complex carbohydrate foods. Fruits, also carbohydrate sources, are

more quickly digested and converted to glucose so they are best eaten with a major meal preferably as a last course. It is also best to limit fruits to only one serving per meal. On the average, one serving would be equivalent to a medium guava, a small apple, a medium orange, a small banana, a medium pear, etc. Small fruits like lychees/rambutan will be about 4 pieces/serving, whereas grapes would be 12 small pieces. A serving of dried prunes is 3 pieces, pomelo 3 segments, mangosteen 3 pieces small, and raisins 2 tablespoons

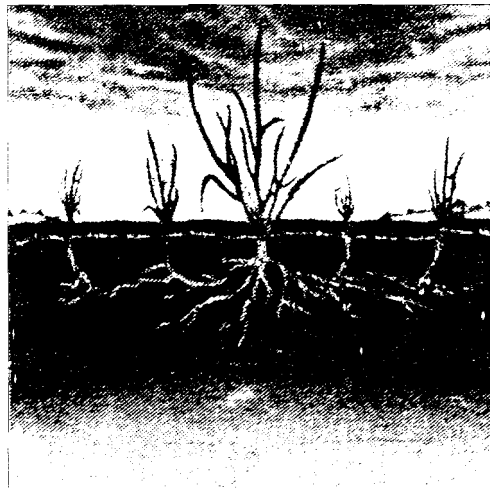
level. Ripe or green mango will be 1 medium slice per serving and not the whole piece. Juices, even if they are unsweetened, are not recommended because they have a tendency to cause a higher blood sugar response. An exception, however, is fresh and dilute unsweetened kalamansi juice which may be taken if tolerated. Because of conflicting reports on the use of artificial sweeteners such as aspartame in pregnancy, they are best avoided until after delivery unless the attending physician has specifically allowed the use of these products. Green, leafy vegetables or vitamin C-rich kinds such as fresh tomatoes may be taken as tolerated. Yellow vegetables such as squash and carrots as well as fresh pepper are recommended for their vitamin A content.

(Continued on page 11)



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Nutrition...

(From page 10)

At least a serving (about the size of a regular matchbox edible portion) of protein-rich foods should be served every main meal but they should be trimmed (fatty portions such as skin, visible fat, etc. should be removed). Serve chicken, fish, and other seafoods more often than red meats such as beef, pork, lamb, veal, etc. Just enough salt or its other sources such as soy sauce, fish sauce, liquid seasoning, and Worcestershire sauce may be added. To make dishes more appetizing, spices and herbs may be added as tolerated. Main courses may be broiled, grilled, steamed, baked, boiled, or roasted instead of frying or basting.

The less fat/oil used either for cooking, as a table spread, or as a dressing, the better. However, if some amount of fat/

oil needs to be used, the preferable types are olive oil, canola oil, almond oil, or other vegetable oils. Reduced fat/fat-free mayonnaise or corn oil/sunflower oil margarine and the like may also be served. Definitely, the healthy choice is less intake of animal fat sources such as butter, whipped cream, bacon, chicharon, and ordinary mayonnaise.

Milk is a very good source of calcium as well as protein. If possible, choose the skim (non-fat) or the half-skim (trim or low fat) type. Natural (plain) yoghurt is also a good choice. Cottage cheese is appetizing and may be served with crackers at snack time. Some fresh celery or canned asparagus spears may be added for zest.

Tofu or bean curd is delicious served in soup with lots of leafy vegetables and some seafood. Mung bean and other

(Continued on page 13)

Gestational...

(From page 9)

(ASGODIP) is currently conducting a study on GDM using a different diagnostic criteria. The study group is utilizing a 75-g 2 hour OGTT to diagnose GDM in contrast to the 100-g 3 hour OGTT recommended by the ADA. A 2 hour value of > 140 mg/dl is diagnostic of GDM. The test requires a lower glucose load (75-g vs 100-g) and requires only one blood glucose determination at 2 hours (compared to 4 blood glucose determinations using the 100-g 3 hour OGTT). The rationale for utilizing a lower glucose load is that Asian women are smaller compared to their non-Asian counterparts and probably need a lower glucose load. We are currently awaiting the results of this important study.

Why is it important to screen for and diagnose GDM? It is important for a number of

obstetric and perinatal considerations. The presence of fasting hyperglycemia (> 105 mg/dl) maybe associated with an increased risk of intrauterine fetal death during the last 4-8 weeks of gestation. Although uncomplicated GDM has not been shown to be associated with increased perinatal mortality, GDM increases the risk of fetal macrosomia or large babies and other neonatal morbidities. GDM is associated with an increased frequency of maternal hypertensive disorders and the need for cesarean delivery. The latter complications may result from fetal growth disorders and/or alteration in OB management due to the knowledge that the mother has GDM.

There are also long-term considerations. Women with GDM are at an increased risk for developing DM after preg-

(Continued on page 13)

*In NIDDM
Management*

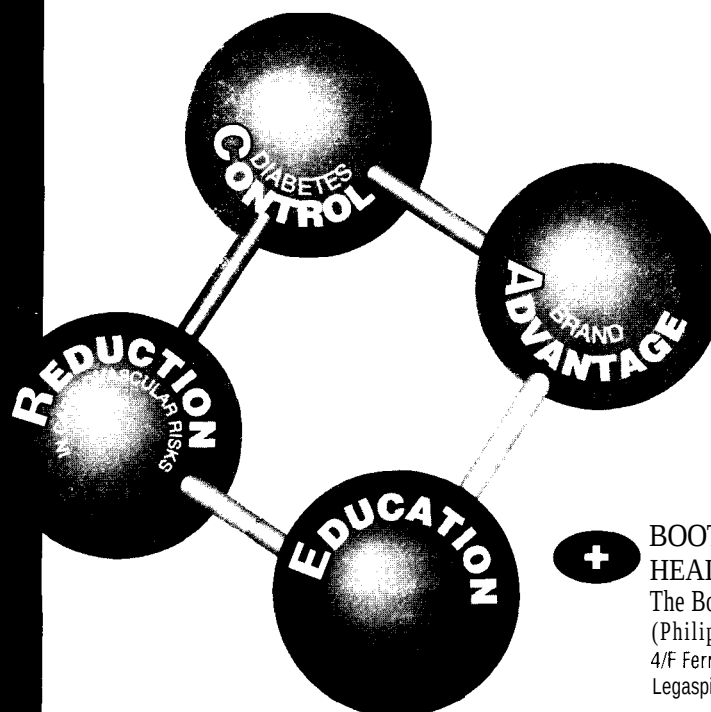
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DIABETES CARE IN PREGNANCY

Josephine Carlos-Raboca, MD
Makati Medical Center

"I am diabetic. If I get pregnant, will my diabetes get worse? Will my life be on the line? Will my baby be normal?"

Pregnancy in diabetes carries risks. In a sense, it is a state of double jeopardy. For the mother, the risk of death is slightly higher than the general population. Cesarean delivery and hypertension or preeclampsia are more likely. For the fetus, congenital anomalies may increase threefold. Neonatal complications such as breathing difficulties, jaundice, hypoglycemia, premature birth, large babies and fetal death are more common. Fortunately, improved diabetes care has reduced these risks. Diabetic women can now give birth to healthy babies. Infant survival rates are now nearly identical with those of non-diabetic women.

What makes pregnancy in diabetes special? During pregnancy, the placenta produces hormones like lactogen, progesterone and prolactin to sustain fetal growth. These hormones increase blood sugar and make the tissues resistant to insulin. The non-diabetic woman can increase insulin production from the pancreas to maintain normal blood sugar levels. The diabetic is not capable of doing this.

In the absence or lack of insulin, blood sugar, despite being elevated, cannot be utilized to provide energy so the body will turn to fats and protein as sources of energy. This mechanism however, will give rise to

ketones or acids which together with high blood sugar can be detrimental to maternal and fetal well being.

Preparing the diabetic woman for pregnancy. Pregnancy must be planned. Glycemic control must be achieved before pregnancy and chronic complications of diabetes screened as they may worsen with pregnancy.

Eyes. An ophthalmologist needs to check the eyes for the presence of retinopathy. This involves changes in the blood vessels found in the light sensitive membrane at the back of the eye called the retina. Minor changes called background diabetic retinopathy may progress slightly but may not be threatening. New vessel formation or proliferative retinopathy needs to be stabilized first, with laser treatment, before pregnancy. Fundoscopy should be done every trimester and after pregnancy.

Kidneys. Urine microalbumin and creatinine clearance tests are needed to check for kidney function. Microalbuminuria may progress during pregnancy. The incidence of preeclampsia (hypertension, urine protein loss and edema) is higher, and if this occurs, the pregnant woman is kept on bed rest. Early delivery of the child may be necessary at times to protect the mother's health.

Heart, nerves, and vessels. The presence of ischemic heart disease, peripheral and autonomic neuropathy as well as periph-

(Continued on page 13)

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PROTECTION**

Diabetes care...

(From page 12)

eral vascular disease should be checked. If complications are serious enough to put both mother and fetus at risk, it is best to avoid pregnancy.

Diabetes management during pregnancy. Good glycemic control is the key to a successful pregnancy and delivery.

Diet. The mother needs to feed for two. Adequate calories must be provided to meet the demands of the mother and fetus. This is generally in the range of 30 calories/ Ideal body weight in the first trimester and 35 calories/ Ideal body weight in the second and third trimesters. Adequacy of calories can be checked by adequate weight gain of the mother, good glucose control and negative ketones in the urine. Multivitamins and folic acid are beneficial.

Insulin and Glucose Monitoring. In preexisting diabetes before pregnancy (called pregestational diabetes), multiple daily injections may be best to achieve good glycemic control. This may require more short acting insulin before meals. Oral diabetic agents should be shifted to insulin. Glyburide (glibenclamide) has been tested in a small number of patients but there is need for further studies on oral agents in pregnancy. Blood sugar monitoring several times a day is needed to keep fasting blood sugar within 60-100 mg% and 1 hour and 2 hour post prandial blood sugars below 140 and 120 mg% respectively. In type 1 diabetes, hypoglycemia may be more possible and blood sugar target levels may be slightly raised. Quarterly glycosylated hemoglobin and daily urine ketones should be

DiabetesWatch

monitored.

Fetal Monitoring. Ultrasound is usually performed during the first trimester to estimate expected delivery. Ultrasound can be used for genetic screening around the 16th week and to monitor the size and weight of the baby. The nonstress test and biophysical scoring are used to assess fetal wellbeing near delivery time.

Gestational...

(From page 11)

nancy. Offspring of women with GDM are at increased risk of obesity, glucose intolerance and diabetes in late adolescence and young adulthood.

Because of these associated short and long-term complications of GDM, we recommend that all pregnant women consult their doctors for the possibility of testing for GDM. The screening and diagnostic tests are inexpensive, easy to do and are easily available. They will surely make a big difference for you and your baby with regards to pregnancy outcome. Indeed, this could be the first favor you could do for your child. I did it for my two children and I'm happy I did!

Nutrition...

forms are high in protein, fiber, and carbohydrate. They have also been found to have a low glycemic index factor (that is, they do not cause the blood sugar to go up to high levels after a meal).

Meals need not be monotonous and boring, it all depends on one's creativity and imagination. They can be varied, colorful, appetizing, satisfying, and cater to the individual's choice. Sometimes, all it is going to take is just a sprig of fresh mint leaves!

The Diabetic Foot: Does Surgery mean Amputation?

Ma. Teresa Plata Que, MD
East Avenue Medical Center

Mr. L., a 50 year old business man with a 20 year history of diabetes came to the clinic of Dr. Q., complaining of a 2x2 cm plantar ulcer on the left foot which had not healed for the past year. On closer examination, the ulcer was rounded by hyperkeratosis or callus and was immediately beneath the 2nd and 3rd toes which were overlapping and curved in shape. There was also lateral deviation of the 1st toe (bunion). The patient also said that he had lost sensation in his feet and he could not feel the monofilament when tested for sensation. (This is a simple gadget which predicts foot ulceration if not felt by the patient.) His dorsalis pedis and posterior tibial pulses were readily palpable. He had already seen several doctors for his condition which did not improve. The ulcer was infected and filled with necrotic tissue and pus. He was confined for a week in the hospital where a surgeon drained the pus from the ulcer and removed all the necrotic tissue. He also received a course of IV antibiotics. During his clinic follow-ups the callus was trimmed regularly by the diabetes nurse and the wound was dressed using normal saline and silver sulfadiazine. He was also able to maintain good blood sugar control and continued oral antibiotics for another 2 weeks. Apart from good footcare and

wound care, he was also advised to wear healing sandals instead of his usual shoes in order to reduce the pressure on his foot. After a month the wound closed and he was referred to a podiatrist who fashioned a pair of extra depth shoes for him which contained a trilayer insole. The insole provided extra cushioning for his foot and the additional depth of his shoes accommodated his overlapping toes and bunion deformity. Since then he has been ulcer free with minimal callus formation.

From this patient's story it is very evident that not all wounds in the foot of a diabetic should lead to amputation. It is fortunate that Mr. L. went to a hospital where the diabetes team was updated on the new trends in management of diabetic foot and wound care. This is one message which the Foot Council under the Philippine Diabetes Association would like to spread to both patients and doctors alike. It is also not true that the only time surgery is needed for the foot is when it needs to be cut off. There are many types of surgeries which can be done for the foot of a diabetic which prevents the occurrence of more serious ailments which may lead to lower limb amputation. In the case of Mr. L., a simple type of surgery which consisted of the removal of dead tissue was performed in

the operating room. This type of surgery also known as "mechanical debridement" is needed so that healthy granulation tissue will grow over the wound bed leading to closure of the wound. Intravenous antibiotics fought the infection in his foot which was the most important tool for wound healing. Of course without good blood sugar control there would also be a failure in healing. His foot ulcer resulted from the breakdown of tissue under his callus. This is also called a neuropathic type of ulcer. In this case, the callus was the result of increased pressure because of the foot deformity or the overlapping toes. Diabetics, compared to normal individuals, have increased pressure over the sole of the foot if neuropathy is present and the presence of a callus is strong

evidence of this. This is why it is imperative that patients with these types of wounds NOT walk on their feet while waiting for the wound to heal. They should use crutches, wheelchairs, or healing shoes and in some cases, casting is applied to lessen the pressure on the foot and allow the wound to heal. In cases where conservative therapy such as extra depth shoes and insoles do not work for the patient and the wound is recurrent, other prophylactic surgery such as metatarsal head resection and bunionectomy can be an option. Removal of bone — which is the cause of extra pressure and callus formation — can lead to the disappearance of the callus. Mr. L. also has a protrusion on the medial side of his left foot (bunion) and this is also prone to ulceration es-

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(Continued on page 15)

Diabetic foot...

(From page Hi

pecially if he wears tight shoes on unfeeling feet.

These procedures are options for surgical intervention short of definitive amputation: exostectomy; hallux valgus reconstruction; arthroplasty; and metatarsal osteotomy.

These are usually performed by a podiatric surgeon or an orthopedic surgeon trained for these types of procedure.

Another minor operation which can be done for the diabetic is partial or total nail avulsion. Because of the way manicurists shape nails to come up with a pointed and rounded shape, ingrown toenails have become a very common problem for our female population. Because the nails dig into the flesh of the toe once they start to grow, the patient seeks out the manicurist time and again to have their nails cut. Over time, the nails become deformed and curved, pinching the nail bed (the flesh under the nail). It is not unusual for an ingrown toenail to become infected and this has led to leg amputation in some patients. This is why diabetic patients are advised not to have manicures and pedicures. To eliminate the problem of ingrown toenails, partial nail avulsion can be done: one side of the nail is removed and occasionally the nail matrix is burned with phenol to prevent regrowth of the nail. In total nail avulsion, the whole nail is removed.

Diabetics may also have poor blood circulation after many years because of atherosclerosis or the increased

deposition of hard fatty materials along the arterial wall which obstructs smooth blood flow. The most common arteries affected are the ones below the knee and above the ankle. Because of this, any type of break in the skin, whether due to trauma or pressure, can lead to very slow healing wounds which attract infection and lead to amputation. Foot examination in the diabetic should always include an evaluation of the circulation in the legs and feet. In those patients with foot ulcers, the vascular surgeons should always be consulted prior to any amputation. The vascular surgeon can perform a surgery where the obstructed vessels in the foot can be bypassed, using a vein attached to an artery above the level of blockade and the other end is attached to an artery below the level of blockade. This will allow the blood to flow and help the wound to heal. The most commonly performed type of bypass for the diabetic is the femoropopliteal bypass or femoro-pedal bypass.

Surgery in the diabetic foot consists of many different types of procedures which can be done with the aim of saving the foot. But, it must be emphasized that the diabetic must strive for normal glucose control from the time his disease is diagnosed, to prevent the complications of diabetes on the nerves, arteries and feet which may require these types of surgery. Foot examination should be done yearly and if the doctor forgets, the patient should remind him. Medical care these days can be very costly. It is a prudent patient who looks ahead and has a game plan for diabetes care in partnership with the diabetes team.

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Mary Ampil Litonjua, MD, Medical City General Hospital



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Patients who have diabetes mellitus are more likely to undergo surgery and anesthesia compared with a non-diabetic population. In addition, they have an increased perioperative morbidity and mortality.

This greater risk in diabetic patients is generally due to a combination of factors mainly 1) due to complications of the disease itself; 2) poor blood sugar control and 3) the various metabolic effects of surgery and anesthesia.

Diabetes Complications Increase Risk

The more important complications of diabetes that increase risk include:

1) Involvement of the autonomic nervous system (autonomic neuropathy) particularly affecting the heart and the vascular system. Coronary artery disease is more severe than in nondiabetic patients. They are also less likely to experience pain associated with ischemic episodes or infarction. Diabetics are also more prone to develop irregular heart beats and a decrease in blood pressure with changes of position.

Involvement of the gastrointestinal tract results in decreased stomach emptying time. Diabetic patients can then easily aspirate stomach contents when given general anesthesia.

Autonomic nervous system dysfunction may also interfere with ventilatory control, making patients more susceptible to the respiratory depressant effects of anesthetics.

2) Microangiopathy

Another complication of

diabetes that may affect the outcome of anesthesia. The kidneys are an important target organ of this process. Because most of the drugs and anesthetic agents used for general anesthesia are excreted wholly or in part by the kidneys, any dysfunction may impair drug elimination, and the patient may not wake up from anesthesia. In addition, diabetics with impaired renal function may have fluid and electrolyte imbalance, dehydration and obtundation which interact with the anesthetic agents.

Poor control of blood sugar can result to acute complications of diabetics. These complications may be due to hyperglycemia or hypoglycemia. Hyperglycemia may manifest with ketoacidosis as well as hyperosmolar nonketotic coma. These both increase intraoperative morbidity and mortality under anesthesia.

Hypoglycemia in the awake patient will often produce central nervous system changes ranging from light headedness to coma. Concomitant sympathetic hyperactivity may cause a rapid pulse, tearing and sweating. The patient can often recognize the symptoms and tell the blood sugar is low before any overt clinical signs develop. In the anesthetized patient, the mental changes of hypoglycemia are unrecognizable, and the signs of sympathetic hyperactivity can be misinterpreted as inadequate or "light" anesthesia and can lead to irreversible damage.

Metabolic Effects of Surgery

and Anesthesia

The stress and trauma associated with surgery and anesthesia causes a pronounced catabolic response. These events are stress-mediated and result from an increased production of counter-regulatory hormones (glucagon, cortisol and catecholamine). The magnitude of the catabolic response depends on the length of the surgery; the severity of the underlying disorder; and the type of anesthetic and anesthetic agents used. Compared to general anesthesia, epidural and spinal anesthesia have minimal effects on glucose metabolism. No significant changes are observed in blood glucose, free fatty acids, ketones, lactate or glycerol. This low stress response is due to a minimal change in plasma control or growth hormone, and a reduction in plasma catecholamine.

In order to minimize risk of surgery and anesthesia on diabetic patients, it is important that the endocrinologist or diabetologist, surgeon and anesthesiologist work as a team.

Side of Diabetes



Dr. Allan S.



DiabetesWatch

A publication of the
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