

**WARREN COUNTY COMBINED HEALTH DISTRICT WEIGHT MANAGEMENT CLASS**

**OCTOBER 28, 2019**

**MORE ON THE COMPLICATION OF DIABETES!**

I TOLD YOU A COUPLE WEEKS AGO THAT WHEN BLOOD SUGAR RUNS HIGH, THE EYE AND KIDNEY CELLS HAVE BEEN DESCRIBED AS “BEING BATHED IN A SUGAR SOLUTION.” THE AIM OF DIABETES TREATMENT IS TO BRING THE BLOOD GLUCOSE LEVEL AS CLOSE TO NORMAL AS POSSIBLE. WHAT IS A NORMAL BLOOD SUGAR? (REMEMBER THAT THE TERMS, “BLOOD GLUCOSE” AND “BLOOD SUGAR” MEAN THE SAME THING.)

NORMAL LEVELS VARY THROUGHOUT THE DAY. FOR SOMEONE WITHOUT DIABETES, A FASTING BLOOD SUGAR ON AWAKENING SHOULD BE UNDER 100 MG / DL. BEFORE-MEAL NORMAL BLOOD SUGARS ARE 70 – 99 MG / DL. “POSTPRANDIAL” SUGARS TAKEN TWO HOURS AFTER MEALS SHOULD BE LESS THAN 140 MG / DL. JUST FYI, A “MG” (MILLIGRAM) IS VERY LITTLE, ABOUT 0.00018 OF A TEASPOON. A DECILITER (DL) IS ABOUT 3 – 1/3 OUNCES.

LIKE I SAID, THOSE NUMBERS ARE FOR A NON-DIABETIC. IF YOU HAVE DIABETES, THE ADA ADVISES KEEPING YOUR BLOOD SUGAR LEVELS BEFORE MEALS FROM 80 - 130 MG / DL AND YOUR LEVELS 1 – 2 HOURS AFTER MEALS UNDER 180. THE CLOSER A DIABETIC CAN GET HIS/HER LEVELS TO THE NUMBERS IN THE ABOVE PARAGRAPH, THOUGH, SO MUCH THE BETTER. THEY ARE MORE PROTECTIVE AGAINST COMPLICATIONS. LIKE ANYTHING ELSE, THIS REQUIRES SOME EDUCATION AND EFFORT!

WE TALKED ABOUT THE A1C A COUPLE WEEKS AGO. A NORMAL LEVEL FOR A PERSON WITHOUT DIABETES IS BELOW 5.7 %. TARGETS FOR A PERSON WITH DIABETES RECOMMENDED BY THE ADA ARE 7.0 %; PREFERABLY LOWER IF YOU’RE AIMING FOR TIGHTER CONTROL.

WHEN GLUCOSE LEVELS ARE HIGHER THAN NORMAL, THEY START TO CAUSE INFLAMMATION IN BLOOD VESSELS AND NERVES. THIS IS WHERE TROUBLES BEGIN.

ONE OF THE VERY SERIOUS PROBLEMS OF THIS DISEASE IS BLINDNESS. FORTUNATELY, BY CONTROLLING THEIR BLOOD SUGAR AND HAVING REGULAR EYE EXAMS, MOST DIABETICS CAN USUALLY PRESERVE THEIR VISION.

*CATARACTS* ARE COMMON IN THE ELDERLY. HOWEVER, A PERSON WITH DIABETES IS 60 % MORE LIKELY TO DEVELOP CATARACTS, POSSIBLY EVEN IN MIDDLE AGE. THIS IS A CONDITION IN WHICH THE CLEAR LENS BECOMES CLOUDY. IT MAY BE REMOVED, AND SOMETIMES IT’S REPLACED WITH AN ARTIFICIAL LENS.

*GLAUCOMA* IS A DANGEROUS ELEVATION OF THE PRESSURE INSIDE THE EYE. A DIABETIC WOULD BE APPROXIMATELY 40% MORE LIKELY THAN WOULD A NON-DIABETIC TO DEVELOP THIS CONDITION.

DRUGS AND SOMETIMES SURGERY ARE THE TREATMENTS FOR GLAUCOMA. MANY TIMES THE DAMAGE IS PREVENTABLE, SO YOU CAN SEE WHY IT'S IMPORTANT FOR ALL OF US - BUT MOST ESPECIALLY FOR THOSE WITH DIABETES, TO HAVE REGULAR EYE EXAMS. VISION PROBLEMS DON'T USUALLY BECOME APPARENT UNTIL IRREPARABLE DAMAGE HAS OCCURRED. GET YOUR EYES CHECKED!

MORE GOOD NEWS...DIABETES PUTS YOUR KIDNEYS AT RISK. THE KIDNEYS' MAIN JOB IS TO GET RID OF EXCESS WATER AND TOXINS IN THE BLOOD. IN FACT, ALL OF OUR BLOOD PASSES THROUGH THE KIDNEYS SEVERAL TIMES A DAY. THE KIDNEYS USE THEIR HUGE NETWORK OF SMALL BLOOD VESSELS AS FILTERS. TUBES, CALLED URETERS, CARRY UNWANTED SUBSTANCES AND EXCESS WATER FROM THE KIDNEYS TO THE BLADDER. MUCH LIKE THE EYES, EXCESS CIRCULATING SUGAR DAMAGES THE KIDNEYS' BLOOD VESSELS. REGULAR SCREENING FOR DAMAGE IS ESSENTIAL, BECAUSE THERE ARE NO SYMPTOMS AT VERY EARLY STAGES. THE KIDNEYS DON'T FILTER PROTEIN FROM THE BLOODSTREAM, BECAUSE THE MOLECULES ARE TOO LARGE. WHEN THE KIDNEYS START SPILLING PROTEIN INTO THE URINE, THIS IS A SIGN OF DAMAGE. TO DETECT ABNORMAL AMOUNTS OF PROTEIN AT A VERY EARLY STAGE, A DOCTOR WILL ORDER SOMETHING CALLED A MICROALBUMIN TEST.

THE FIRST NOTICEABLE SYMPTOM OF KIDNEY TROUBLE IS EDEMA, OR WATER RETENTION. LEGS AND ANKLES SWELL, AND THE FACE (ESPECIALLY AROUND THE EYES) BECOMES PUFFY. AS DAMAGE PROGRESSES, EXCESS FLUID WILL ACCUMULATE ELSEWHERE IN THE BODY. THE ABDOMEN BECOMES DISTENDED. LUNGS FILL WITH FLUID, PRODUCING BREATHLESSNESS. BLOOD PRESSURE RISES, CAUSING HEADACHE AND FATIGUE. HEART PROBLEMS MAY DEVELOP.

QUALITY OF LIFE IS SEVERELY AFFECTED BY MALFUNCTIONING KIDNEYS. TOXINS THAT ACCUMULATE IN THE BLOOD CAN CAUSE A WIDE RANGE OF SYMPTOMS: ITCHING, NAUSEA, CONFUSION, AND SEIZURES. ANEMIA DEVELOPS BECAUSE THE KIDNEYS ARE UNABLE TO STIMULATE THE BONE MARROW TO MAKE RED BLOOD CELLS. THIS RESULTS IN CHRONIC EXHAUSTION AND WEAKNESS.

AS WITH MANY THINGS, PREVENTION IS KEY. CONTROLLING BLOOD SUGAR IS THE BEST WAY TO AVOID DAMAGE TO THE KIDNEYS. IN THE EARLY STAGES OF KIDNEY FAILURE, THERE ARE MEDICATIONS THAT IMPROVE BLOOD FLOW. THIS HELPS TO PRESERVE THEM, OR AT LEAST WILL DELAY DETERIORATION. AT SOME POINT, THOUGH, MEDICATIONS ARE NO LONGER USEFUL AND DIALYSIS IS IMMINENT. THE ONLY OTHER OPTION IS A KIDNEY TRANSPLANT, AND CERTAINLY NOT EVERYONE IS A CANDIDATE.

REMEMBER GLYCATION? (THE ROTTEN FRUIT EXAMPLE!) ABOUT HALF THE FOLKS WHO HAVE DIABETES HAVE SOME DAMAGE TO THEIR NERVES. DIABETES ATTACKS THE NERVES THROUGH THE PROCESS OF GLYCATION. SUGAR ATTACHES ITSELF TO THE NERVE FIBERS AND THE PROTECTIVE MYELIN SHEATH. THE DAMAGED NERVES CANNOT TRANSMIT INFORMATION PROPERLY. THE SYMPTOMS RANGE FROM MILD TO UNBEARABLE.

DAMAGE TO THE PERIPHERAL NERVOUS SYSTEM IS CALLED PERIPHERAL NEUROPATHY. THIS SYSTEM ALLOWS US TO TOUCH AND FEEL, TASTE AND SMELL. IT'S PRETTY DARN IMPORTANT! WE CAN

WIGGLE OUR FINGERS AND TOES, AND WE KNOW WHETHER OR NOT WE'VE INJURED THEM. NERVOUS IMPULSES ARE TRANSMITTED TO OUR BRAIN FROM OUR SKIN, MUSCLES, AND BONES – AND THEN BACK AGAIN FROM THE BRAIN. DAMAGE TO THIS SYSTEM CAUSES NUMBNESS AND BURNING IN THE EXTREMITIES. THINK WHAT CONSEQUENCES A LOSS OF SENSATION CAN HAVE.

AMPUTATION IS THE MOST EXTREME AND TERRIBLE OUTCOME OF PERIPHERAL NEUROPATHY. EACH YEAR, MORE THAN 60,000 PEOPLE LOSE ONE OR MORE TOES, A FOOT, OR EVEN A LEG AS A RESULT OF THIS COMPLICATION. AT FIRST, WOUNDS ARE MANAGED WITH ANTIBIOTICS OR OTHER TREATMENTS. HOWEVER, ONCE GANGRENE SETS IN AND THE DAMAGE IS ADVANCED, IT'S IRREVERSIBLE. THIS IS ONE OF THOSE CASES WHERE AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE!

ON THAT CHEERFUL NOTE, LET'S SAY GOODNIGHT!

HOW DID YOU DO WITH "NO PIZZA?"

OUR "NO!" FOOD FOR THE NEXT WEEK: **NO CANDY!!!**

**DON'T FORGET! THE THANKSGIVING FEAST IS NEXT MONDAY, NOVEMBER 4<sup>TH</sup>!!!**

