diabetes NEWSLETTER

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Inside Bangladesh

Prevalence of diabetes and hypertension in a rural population of Bangladesh- A Study

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OBJECTIVE :

To determine the prevalence of non-insulin-dependent diabetes mellitus (NIDDM), impaired glucose tolerance (IGT), and hypertension in a rural community of Bangladesh.

RESEARCH DESIGN AND METHODS :

A cluster sampling of 1,005 subjects > 15 years of age in the rural community of Dohar was investigated. Capillary blood glucose of fasting and 2 h after 75 g oral glucose (2hBG) were estimated. World Health Organization criteria were used for diagnosis of NIDDM and IGT. Blood pressure, height, and weight were also measured.

RESULTS :

The crude prevalence of NIDDM was 2.1% (men 3.1%, women 1.3%) and IGT was 13.3% (men 14.4, women 12.4%). Age-adjusted (30-64 years of age) prevalence was 2.23% for NIDDM and 15.67% for IGT. Prevalence of hypertension with systolic blood pressure > or = 140 mmHg was 10.5% and with diastolic blood pressure > 90 mmHg was 9.0%. Increased age was the risk factor for NIDDM, IGT, and hypertension; whereas increased BMI showed inconsistent association with them. Relative risk for systolic blood pressure with higher BMI (< 22.0 vs. > or = 22.1) was 1.94 and for diastolic blood pressure it was 2.2. Correlation of systolic blood pressure was significant with age, BMI, and 2hBG. Similar correlation was also observed with diastolic blood pressure.

CONCLUSIONS :

High prevalences of NIDDM, IGT, and hypertension were observed among rural subjects. Increased age was shown to be an important risk factor for all these disorders, whereas BMI-associated risk was significant with NIDDM and hypertension but not with IGT.

Diabetescope

Oral Contraceptives and Diabetic Nephropathy

The use of oral contraceptives and accompanying activation of the renin angiotensin system (RAS) appears to be a risk factor for diabetic nephropathy, researchers report in the August issue of Diabetes Care.

Dr. Sofia B. Ahmed of Brigham and Women's Hospital, Boston and colleagues note that the strong association between RAS and diabetic nephropathy led them to investigate a possible connection with oral contraceptive use.

The researchers initially studied 12 diabetic oral contraceptive users and 10 nondiabetic oral contraceptive users. Dr. Ahmed's team also included 29 diabetic and 41 nondiabetic subjects who did not use oral contraceptives. Renal plasma flow in response to captopril was used as an index of RAS activity.

The nondiabetic nonusers showed a "minimal" increase compared to a significantly greater increase in nondiabetic oral contraceptive users. Diabetic nonusers also had a significantly greater and anticipated increase, but the vasodilator response was greatest in the diabetic oral contraceptive users.

The renal plasma flow responses to captopril, and to ACE inhibitors in a subset of subjects were highly correlated, suggesting clear involvement of the RAS.

The researchers then went on to gauge the impact of oral contraceptive use in a cohort of 114 women with newly diagnosed type I diabetes.

After a median of 20.7 years of follow-up, 18% of oral contraceptive users developed macroalbuminuria compared with 2% of nonusers. After adjustment for age at onset and blood pressure, oral contraceptive use remained a significant predictor of development of the condition .

The researchers call for larger prospective studies, but meanwhile suggest that caution and surveillance should be applied to oral contraceptive use in the context of diabetes.

Source: Diabetes Care 2005;28:1988-1994.

Older Newly Diagnosed Diabetics and Pancreatic Cancer Risk

Patients 50 years of age or older who have recently been diagnosed with type 2 diabetes have an increased risk of being diagnosed with pancreatic cancer, study results show. But because the cancer is usually advanced to the stage of being unresectable by the time hyperglycemia is noted, it is unlikely that newly diagnosed diabetes will be a useful tool for screening asymptomatic individuals.

Disease-specific symptoms of pancreatic cancer generally don't appear until the cancer has reached an advanced stage. Because of the recognized association between diabetes and pancreatic cancer, Dr. Dr. Suresh T. Chari and his colleagues at the Mayo Clinic College of Medicine in Rochester, Minnesota, investigated the potential value of new-onset diabetes as a marker of underlying pancreatic cancer.

They used data from the Rochester Epidemiology Project to identify Minnesota residents first diagnosed with diabetes at age 50 or older between 1950 and 1994. To estimate the incidence of pancreatic cancer in the general population, the researchers analyzed data from the Iowa Surveillance, Epidemiology, and End Results (SEER) program.

According to their report in the August issue of Gastroenterology, 2127 Rochester residents were diagnosed with diabetes, 18 of whom met criteria for pancreatic ductal carcinoma within 3 years of diagnosis. By the time diabetes was diagnosed, nine had cancer-related symptoms, such as abdominal pain, weight loss, and jaundice. The cancer could be resected in three patients.

The observed-to-expected ratio of pancreatic cancer within the first 3 years of a diabetes diagnosis was 7.94. The observed/expected ratio was more pronounced in men (9.69) and in subjects aged 70 or older (9.91).

The success of the strategy to use hyperglycemia as a screening tool to identify subjects with a high likelihood of having underlying undiagnosed pancreatic cancer will depend largely on our ability to differentiate pancreatic cancer-induced diabetes from type 2 diabetes using a serologic marker, which has yet to be identified.

Source: Gastroenterology 2005;129:504-511.

Diabetescope

Oral Thiazolidinedione & β-Cell Function in Type 2 Diabetes Mellitus

Worsening glycemic control in type 2 diabetes mellitus relates to a decline in p-cell function. Insulin resistance, the 'traditional' cornerstone defect of type 2 diabetes, leads to an array of adverse effects on p-cell, including hypertrophy, apoptosis and those caused by lipotoxicity and glucotoxicity. In particular, increased levels of free fatty acids and their metabolites are thought to diminish both insulin synthesis and glucose-stimulated insulin secretion. Thiazolidinediones are synthetic peroxisome proliferator-activated receptor-γ agonists that decrease insulin resistance but as in vitro and in vivo studies suggest, may have direct beneficial effects on pancreatic β-cell. Troglitazone, for example, demonstrated improvements in insulin secretory capacity in isolated pancreatic islets. In vivo studies reveal thiazolidinediones promote β-cell survival and regranulation as well as maintenance of β-cell mass and reduction in amyloid deposition.

Empirical evidence showing decreases in fasting plasma insulin levels with pioglitazone and rosiglitazone indicate thiazolidinediones also improve insulin sensitivity. A possible effect of thiazolidinediones on normalising asynchronous insulin secretion, is less established. However, recent and ongoing clinical studies support the notion that thiazolidinediones have beneficial effects on β-cell function. These clinical studies have shown thiazolidinediones capable of preventing or delaying the development of type 2 diabetes in a high-risk population; restoring the first-phase insulin response; and improving secretory responses to oscillations in plasma glucose levels. Many of these effects appear to be independent of improvements in insulin sensitivity. Available data imply thiazolidinediones are associated with cardiovascular risk reduction, although results from large, clinical outcome trials, currently in progress, are still needed.

Emerging evidence suggests thiazolidinediones offer specific benefits for preventing or delaying the decline in p-cell function and, thereby, a substrate for early intervention efforts aimed at lowering the worldwide burden of type 2 diabetes.

Source: Drugs 2005: 65(1): 1-13

Insulin Resistance and Risk of Heart Failure

Insulin resistance is an independent risk factor for congestive heart failure, new research suggests, and this may, in large part, explain the well-known association between obesity and CHF.

Dr. Erik Ingelsson, from Uppsala University in Sweden, and colleagues assessed the link between insulin resistance and heart failure by analyzing data from 1187 elderly men who were followed from the early 1990s through 2002. All of the subjects were free from heart failure and vascular disease when the study began.

During a median follow-up period of 8.9 years, 104 developed congestive heart failure, the report indicates.

For a 1-SD (Standard Deviation) increase in the 2-hour glucose value of an oral glucose tolerance test, fasting serum proinsulin level, BMI, and waist circumference, the risk of heart failure increased by 44%, 29%, 35%, and 36%, respectively. Conversely, a 1-SD drop in the clamp glucose disposal rate reduced the risk of heart failure by 34%.

Further analysis showed that the obesity parameters were not significantly predictors of heart failure when the clamp glucose disposal rate was included in the analysis, the authors report.

Insulin resistance appears to be the main link between obesity and heart failure, but further studies are needed to confirm the current results, Dr. Ingelsson's team concludes.

Source: JAMA 2005;294:334-341

Diabetic Foot Disease

Diabetic foot problems are a common complication of diabetes. Approximately half of all non-traumatic lower extremity amputations are performed in people with diabetes. The St Vincent Declaration called for a 50% reduction in amputation from diabetic gangrene, reflecting the belief that much morbidity is preventable by better disease management.This guideline examines the evidence for identifying people with diabetes at risk of foot ulceration or lower limb amputation and offering treatment to reduce the risk. An algorithm for the screening and management of diabetic foot disease is provided in the Summary.

DEFINITION OF DIABETIC FOOT DISEASE

The diabetic foot can be defined as a group of syndromes in which neuropathy, ischaemia and infection lead to tissue breakdown or ulceration, resulting in morbidity and possible amputation. In the majority of people with diabetic foot disease, diabetic peripheral neuropathy is present. Ischaemia and infection may also be present. Diabetic foot lesions frequently result when two or more risk factors are present. Neuropathy, which is caused by diabetic microvascular disease, can lead to loss of foot sensation.

This may result in subsequent foot deformity, causing abnormal biomechanical loading of the feet, then breakdown of skin and ulceration. Ischaemia is caused by loss of circulation due to peripheral arterial disease. Infection often complicates neuropathy and ischaemia, and can cause considerable damage in diabetic feet.

Diabetic foot pathology can be grouped into the two broad categories of neuropathic and neuroischaemic disease. Of people with diabetes presenting at dedicated foot clinics, about 50% have neuropathic feet and 50% have neuro-ischaemic feet.

- Neuropathic feet are warm, numb, dry, and usually painless and pulses remain palpable. Two main complications are Charcot (or neuropathic) joints and neuropathic ulcers (found mainly on the soles of the feet). In people with neuropathic feet, minor trauma (eg, caused by ill-fitting shoes, walking barefoot or an acute injury) can precipitate a chronic ulcer. As neuropathic feet are insensitive, continued walking on the insensitive foot causes more damage.
- Neuro-ischaemic feet are cool and pulses are absent. In addition to the neuropathic complications described above, intermittent claudication, rest pain and gangrene may occur. However, in some cases there may be no pain despite severe ischaemia. Neuro-ischaemic ulcers, resulting from localised pressure damage, are found mainly at the edges of the feet. Purely ischaemic feet (with no neuropathic features) occur less commonly, and are managed in the same way as neuroischaemic feet.

RISK FACTORS

Foot ulcers in people with diabetes are the result of multiple pathophysiologic mechanisms. The relative importance of different risk factors in predicting the risk of diabetic foot complications have not been established definitively. However, the presence of multiple risk factors has a cumulative effect. People with diabetes who are at highest risk of foot ulceration and lower extremity amputation include those with:

- peripheral neuropathy
- peripheral arterial disease
- previous amputation
- previous ulceration (risk of recurrent ulcer) and current ulceration (risk of amputation)
- structural foot deformity
- plantar callus.

The presence of any of these features indicates what is termed the 'high risk foot'. Other recognized associated risk factors include: older age, male sex, particular ethnic groups, longer duration of diabetes, poor vision, renal disease, impaired mobility, smoking, poor footwear, poor nutritional status and social deprivation/isolation.

Prospective cohort studies have shown that peripheral neuropathy precedes diabetic foot ulceration, and predicts both ulceration and amputation. In addition to peripheral neuropathy, the pathway to an ulcer includes the presence of other factors such as structural foot deformity and a pivotal event, usually minor trauma. More research is required to clarify the factors influencing the different pathways to ulceration and amputation. Peripheral arterial disease is common in people with type 2 diabetes, and is associated with a twofold to four-fold increase in amputations. The role of peripheral arterial disease as an independent risk factor for foot ulceration remains uncertain. Previous lower extremity amputation is a risk factor for ulceration and further amputation, and is associated with a 68% mortality rate after 5 years. Foot deformity and callus are both risk factors for ulceration, especially in people with peripheral neuropathy. Measures to reduce foot pressures (including callus debridement, orthoses and specialised footwear) improve outcomes and reduce the risk of ulceration. A history of a past diabetic foot ulcer indicates a lifelong risk of recurrent foot ulceration or amputation. A current diabetic foot ulcer puts a person at high risk for amputation, and close monitoring is necessary. An ulcer precedes 85% of first and second amputations.

SCREENING FOR THE 'AT RISK FOOT' AND DIABETIC FOOT DISEASE

The absence of reliable foot symptoms and the high prevalence of asymptomatic foot disease among people with diabetes make foot screening essential. There is no

clear evidence to indicate the optimal frequency of feet examinations in people with diabetes. Regular surveillance, at least annually, from the time of diagnosis of diabetes is sound clinical practice, when there are no existing features of a high risk foot.

METHODS OF SCREENING

RECOMMENDATIONS: ASSESSMENT OF THE DIABETIC FOOT

- Both 10 g monofi lament and vibration perception thresholds (using a biothesiometer) are appropriate methods for neuropathy screening.
- Assessment for high risk feet in people with diabetes by a health care practitioner should always include:
  - direct visual inspection
  - assessment for peripheral neuropathy
  - assessment for peripheral arterial disease
- A 10 g monofi lament is a convenient and cost-effective way to assess for peripheralneuropathy. Monofi laments should be cleaned and replaced regularly according to manufacturer's recommendations.

Assessment of the feet of people with diabetes by a health care practitioner should include all of the following:

- direct visual inspection to identify current ulceration, deformity, previous amputation, presence of vulnerable pressure sites, standard of foot self-care, and skin abrasions.
- assessment for peripheral neuropathy either by using 10 g monofi lament or vibration perception thresholds (using a biothesiometer). Both these methods (as well as clinical neuropathy disability scores), singly or in combination, have shown benefits in identifying people with diabetes at increased risk of foot ulceration.
- assessment of peripheral circulation through enquiry about symptomatic claudication and/or rest pain, and palpation of pedal pulses. Methods of screening for vascular insufficiency are less well-defined. The absence of pedal pulses is an indicator of peripheral arterial disease. Ankle pressure and pressure indices can be falsely elevated in people with diabetes because of arterial calcification and should be interpreted with caution.

INTERVENTIONS FOR 'AT RISK FEET' AND DIABETIC FOOT DISEASE

RECOMMENDATIONS: GENERAL MANAGEMENT OF DIABETIC FOOT DISEASE

- Foot care education is recommended as part of a multidisciplinary approach in all people with diabetes.
- People with diabetes and high risk feet should be referred to a specialist diabetic foot clinic or multidisciplinary foot care team, where one is available. If access to a foot clinic is not possible, people with high risk feet should be under the care of a podiatrist.
- People with diabetic foot disease should be advised to wear high-quality, cushionedsoled running or sports shoes rather than ordinary shoes.
- In people with high risk feet, deformity or previous amputation, custom-built footwear or orthotic insoles should be used to reduce callus severity and ulcer recurrence.
- Health care practitioners should be aware that the cost of appropriate off-the-shelf footwear, and of consulting a podiatrist to get custom-made orthoses, may be a barrier for many people with diabetes.
- The ability of the person to undertake regular foot self-care and self-assessment should also be assessed by the health care practitioner.

DIABETES FOOT EDUCATION

Several studies of education in people with diabetes with little or no existing foot disease were identified, but most of these involved small numbers, used different endpoints and reported inconclusive findings. Only two large studies were identified which used significant lesions as endpoints. One study, where people had agreed 'personalised behavioural contracts', indicated that at 1-year follow-up, there was a significant reduction in serious lesions. The other study showed no significant change in lesions and little or no effect of a general education program after 18 months follow-up. A single Randomised Controlled Trial (RCT) suggested that intensive education may be effective in the prevention of amputation or recurrent ulceration in people who have had previous diabetic foot disease. This trial involved an unusual intervention, which included frank presentation of the complications of diabetic foot disease to all people in the experimental group. This intervention may not be generalisable to all people with diabetes or appropriate in all settings. However, the reduction in amputation and ulceration after one year was promising and should be replicated in further trials in order to validate the technique.

Programs which include education with podiatry show a positive effect on minor foot problems after a relatively short follow-up.

FOOT CLINICS AND MULTIDISCIPLINARY FOOT CARE TEAMS

The studies identified were difficult to compare because there was no universal definition of multidisciplinary care, and the settings varied from primary care to hospital specialist referral clinics. However, it was concluded that a multidisciplinary foot care team can improve the speed of ulcer healing, and reduce the ulcer recurrence rate and the amputation rate in people with diabetes with high risk feet. The common components of multidisciplinary foot care teams were a physician and a podiatrist, with most teams also including a specialist nurse, an orthotist and a surgeon (or ready access to a surgeon).

The SIGN (Scottish Intercollegiate Guidelines Network) guideline on diabetes contains a grade C recommendation that all people with diabetes should have access to

structured diabetic foot care, based on the following evidence:

- access to a podiatrist reduces the number and size of foot calluses and improves self-care
- in the absence of a multidisciplinary foot care team, foot lesions are more likely to lead to amputation. Multidisciplinary foot care teams allow intensive treatment and rapid access to orthopaedic and vascular surgery. This allows control of infection and revascularisation when needed. Wound healing and foot-saving amputations can then be successfully achieved, reducing the rate of major amputations
- adherence to locally established protocols may reduce length of stay and major complication rates.

FOOTWEAR AND ORTHOSES

Plantar pressure using ordinary shoes is similar to being barefoot. High-quality, cushioned-soled running shoes can reduce plantar pressure more than ordinary shoes but not as much as custom-built shoes. There is limited evidence that padded hosiery can reduce peak plantar pressures.

The use of custom-made foot orthoses and therapeutic footwear reduces the plantar callus thickness and incidence of ulcer relapse. People who routinely wear therapeutic shoes and orthoses are less likely to have ulcer relapse.

TOTAL CONTACT CASTING

RECOMMENDATIONS: TOTAL CONTACT CASTING

- People with diabetes who have unilateral neuropathic plantar ulcers should be considered for treatment using total contact casting to optimise the healing rate of ulcers.
- Podiatrists or plaster technicians appropriately trained in total contact casting technique,
- and preferably part of a specialist diabetic foot clinic, are the appropriate people to carry out this treatment.
- Several RCTs and some other studies have shown that the treatment of people with unilateral neuropathic plantar ulcers using total contact casting can reduce the healing time to a mean of approximately 6 weeks. Use of 'half shoes' reduces the time to complete closure of an ulcer.

ARTERIAL REVASCULARISATION

RECOMMENDATION: ARTERIAL REVASCULARISATION

- All people with diabetic foot disease with tissue loss and arterial disease should be referred for consideration of arterial revascularisation procedures.

People with diabetes are more prone to peripheral arterial disease (PAD) than people without diabetes. This includes both proximal (aorto-iliac and femoral) and distal (calf and foot) disease. Rates of limb salvage following distal bypass surgery are relatively high. Salvage rates of around 80% are reported in the initial presence of tissue loss (gangrene and ulceration). Increased frequency of distal bypass is associated with reduced frequency of amputation. No evidence was found to support recommendations on the optimum stage to make a vascular intervention.

TREATMENT OF FOOT ULCERS

RECOMMENDATIONS: TREATMENT OF FOOT ULCERS

- Treatment of a clinically infected diabetic foot ulcer should be commenced with a broad spectrum antibiotic regimen in conjunction with appropriate debridement. Subsequent antibiotic regimens may be modified based on the swab culture and sensitivity results.
- Intravenous antibiotics are indicated in the presence of cellulitis or osteomyelitis, and prompt referral to hospital is required in these circumstances.
- Wound dressings for diabetic foot ulcers should be chosen with consideration of clinical experience, cost, patient preference and the site of the wound.
- Wounds should be closely monitored, and dressings changed regularly.

ANTIBIOTIC THERAPY

There is no clear evidence of the benefit of routine antibiotic therapy in the management of infected diabetic foot ulcers. If antibiotics are used, there is no evidence regarding the optimal duration or route for antibiotic treatment. No single broad spectrum antibiotic regimen was shown to be more effective over another in the treatment of diabetic foot ulcers. Diabetic foot ulcers are often colonised by a mixture of organisms, and routine swabs may be of limited value.

DRESSINGS FOR FOOT ULCERS

In many cases, diabetic foot ulcers are not infected, and require only protective bandaging. The characteristics of a good dressing are that it :

- should perform well in the closed environment of the shoe
- should not take up too much space
- should be capable of absorbing large quantities of exudate without plugging the wound and preventing drainage
- should withstand the pressures and shear forces of walking without failing
- should not cause side effects
- should be easily lifted or removed for regular inspection without adversely affecting the wound.

OTHER TREATMENTS FOR FOOT ULCERS

Other treatments for diabetic foot ulcers include living human tissue replacement therapy (cultured human dermis), maggot therapy, growth factors and granulocyte-colony stimulating factor, ketanserin and hyperbaric oxygen therapy.

Use of living human tissue replacement therapy shows a consistent increased rate of healing and increased number of completely healed ulcers in people with diabetes.

The evidence for maggot therapy is inconclusive, but clinical experience suggests that it is a useful alternative method for debridement of ulcers.

One RCT indicated that subcutaneous granulocyte colony-stimulating factor (G-CSF) decreases the time for resolution of cellulitis in diabetic foot infections. Growth factors such as topical RGD (arginine glycine aspartic acid) peptide matrix and CT-102 may increase the rate of closure of diabetic foot ulcers. Topical becaplermin increases the rate of closure of diabetic foot ulcers.

The Royal College of General Practitioners concluded that there was insufficient evidence to recommend the use of ketanserin or hyperbaric oxygen therapy.

MANAGEMENT OF PAINFUL DIABETIC NEUROPATHY

For more severe neuropathic pain, tricyclic antidepressants are indicated. The starting dose should be low, and titrated upwards until adequate pain relief is achieved.

Gabapentin is effective in painful diabetic neuropathy that is unresponsive to tricyclic antidepressant or anticonvulsant therapy, and is associated with fewer side effects than tricyclic antidepressants and older anticonvulsants.

Topical capsaicin should be considered for the relief of localised neuropathic pain.

For mild neuropathic pain, simple analgesia (such as paracetamol) should be used as first-line therapy.

Carbamazepine is another therapy to consider for more severe neuropathic pain.

There is good evidence that the tricyclic antidepressants (TCAs) amitriptyline, imipramine and desipramine, the anticonvulsant carbamazepine, and topical capsaicin are more effective than placebo in reducing symptoms of painful diabetic peripheral neuropathy.

CHARCOT'S FOOT (Charcot neuroarthropathy)

- Diagnosis of Charcot's foot should be made by clinical examination, supported by appropriate investigations.
- Total contact casting and non-weight bearing are effective treatments for acute Charcot's foot.
- People with suspected Charcot's foot should be referred for urgent specialist advice.

Charcot's foot is a neuroarthropathic process with osteoporosis, fracture, acute inflammation and disorganisation of foot architecture. During the acute phase, Charcot's foot can be difficult to distinguish from cellulitus, acute gout or osteomyelitis. Clinical diagnosis of Charcot's foot is based on the appearance of a red, swollen, oedematous and usually painless foot in the absence of infection. The disease process can become quiescent with increased bone formation, osteosclerosis, spontaneous arthrodesis and ankylosis. Acute Charcot's foot is associated with a skin temperature 2-8^{0}C higher than the contralateral foot. As there is no specific confirmatory test the routine use of MRI or dynamic bone scanning is not recommended, but the appropriate use of isotope scans & MRI can help diagnose Charcot's foot as well as monitor the progression of disease and response to treatment.

Treatment of Charcot's foot with contact casting is associated with a reduction in skin temperature and reduction in bone activity.

Preventing active foot problems and lower limb amputation

All people with type 2 diabetes from diagnosis

How to Screen
- Direct visual inspection
- Assess for peripheral neuropathy using either 10 g monofilaments or biothesiometer
- Assess peripheral circulation

Does the patient have any features of a high risk foot?
- Peripheral neuropathy (see Note 1)
- Peripheral arterial disease
- Previous amputation
- Previous ulceration (risk of recurrent ulcer) or current ulceration (risk of amputation)
- Structural foot deformity
- Plantar callus

No

What to do
- Foot care education is recommended as part of a multidisciplinary approach
- Discuss the need for supportive, well-fitting closed shoes
- Give culturally appropriate advice to Māori and Pacific people

Follow-up
Annual screening

Yes

Management of the high risk foot
- Foot care education is recommended as part of a multidisciplinary approach
- Discuss the need for supportive,well-fitting closed shoes
- Give culturally appropriate adviceto Māori and Pacific people
- Custom-built footwear or orthotic insoles should be used to reduce callus severity and ulcer recurrence
- All people with peripheral arterial disease and tissue loss, should be referred for consideration of arterial revascularisation procedures

Follow-up
Every 3 - 6 months

Management of active foot problems
- Closely monitor wounds (ulcers) and change dressings regularly
- Total contact casting by appropriately trained podiatrists or plaster technicians should be considered for people with unilateral plantar ulcers
- Clinically infected diabetic foot ulcers should be treated with a broad spectrum antibiotic regimen in conjunction with appropriate debridement. Antibiotic regimens may be modified subsequently depending on swab culture and sensitivity results
- If cellulitus or osteomyelitis is suspected or present, refer promptly for further assessment and intravenous antibiotics

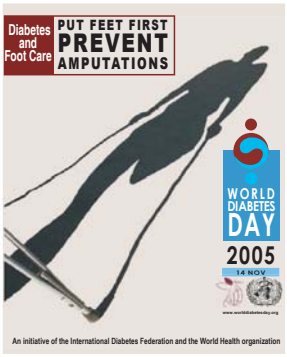
Follow-up
Regular assessment until active problem resolved, then every 3 - 6 months

Note 1: Analgesia for painful diabetic neuropathy
- For mild neuropathic pain, simple analgesia, eg, paracetamol should be tried first
- For more severe neuropathic pain, tricyclic antidepressants are indicated, starting with a low dose and titrating upwards until adequate pain relief or side effects develop
- Carbamazepine can be considered for more severe neuropathic pain
- Consider gabapentin if severe neuropathic pain is unresponsive to antidepressant or anticonvulsive therapy
- Topical capsaicin should be considered for the relief of localised neuropathic pain.

References :
1. New Zealand Guidelines Group, (NZGG) MANAGEMENT OF TYPE 2 DIABETES, Best Practice Evidence-based Guideline, DECEMBER 2003.
2. Canadian Diabetes, December Association 2003 Clinical Practice Guidelines, Canadian Journal of Diabetes, December 2003: Volume 27, Supplement 2.

World Diabetes Day 2005

PUT FEET FIRST: PREVENT AMPUTATIONS



People with diabetes are at risk of nerve damage (neuropathy) and problems with the blood supply to their feet (ischaemia). Both neuropathy and ischaemia can lead to foot ulcers and slow-healing wounds which, if they get infected, may result in amputation. In 2000, the International Diabetes Federation and the International Working on the Diabetic Foot together established goals for the future of diabetic foot care worldwide.

Goals

- to inform people of the extent of diabetic foot problems worldwide
- to raise awareness of the diabetic foot among those at risk and those in a position to take action
- to persuade healthcare decision makers that action is both possible and affordable
- to warn healthcare decision makers of the consequences of not taking action
- to inform people with diabetes of the measures they can take to prevent foot complications

In 2003 the global prevalence of diabetes was estimated at 194 million, predicted to reach 333 million by 2025. This rise is likely to bring a proportional increase in the numbers of people with diabetes complications, including problems of the foot.

Most amputations begin with a foot ulcer

Diabetic foot ulcers as a result of neuropathy or ischaemia are common. In developed countries, up to 5% of people with diabetes have foot ulcers, and 1 in every 6 people with diabetes will have an ulcer during their lifetime. In developing countries, foot problems related to diabetes are more common.

Every 30 seconds a leg is lost to diabetes somewhere in the world

Between 40% and 70% of all lower extremity amputations are related to diabetes. This means that every 30 seconds a lower limb is lost to diabetes. 85% of all diabetes-related amputations are preceded by foot ulcers. Aggressive management of the diabetic foot can prevent amputations in most cases. Even when amputation takes place, the remaining leg and the life can be saved by good follow-up care from a multidisciplinary foot team. In developing countries, it has been estimated that foot problems may account for as much as 40% of the total available resources.

Up to 85% of amputations can be prevented

In most cases (49-85%), however, diabetic foot ulcers and amputations can be prevented. It is imperative, therefore, that healthcare professionals, policymakers and diabetes representative organizations undertake concerted action to ensure that diabetic foot care is structured as effectively as local resources will allow. There is strong evidence to indicate that foot care is best delivered when it is provided by a multidisciplinary team. This should closely involve the person with diabetes and his or her family, along with healthcare professionals from different specialties. Ideally the team will include a physician, a nurse, a specialist educator, a podiatrist, a surgeon, an orthotist (shoemaker) and an administrator. The podiatrist is a key member of the multidisciplinary diabetic foot team. At present there is a lack of trained podiatrists working in diabetic foot care.

IDF's position is that management in the prevention and treatment of diabetic foot problems includes the following:

- Annual inspection of the foot
- Identification of the foot at risk
- Education of people with diabetes and healthcare professionals
- Appropriate foot wear
- Rapid treatment of all foot problems

Conclusion

It is hoped that global awareness of diabetes and its complications will be raised and that the necessary attention will be paid to the need for improved foot care for people with diabetes throughout the world. IDF recommends that every individual with diabetes receive the best possible foot care. At the organizational level, diabetic foot care should be structured in such a way as to optimize treatment and prevention possibilities.

Editorial Note:

Dear Doctor, We have changed the getup & color shade of our Diabetes Newsletter and this issue of your *diabetes newsletter is* focused on "Diabetic Retinopathy". We appreciate your comments and queries & suggestions.