The Minutes of the Derby Medical Society Wednesday 25th January 2017
Medical School Lecture Theatre

Speaker:
Mr Steve Milner
Senior Secretary DMS
Consultant Trauma, Orthopaedic and Foot and Ankle Surgeon, Royal Derby Hospital

Before the main presentation, the winner of the 2016-17 Medical Student Elective bursaries were announced from the 39 applications. The applications were judged by Dr Helen Lever (Junior Secretary) and Mr Steve Milner (Senior Secretary).

The winners were: Anil Krishan elective in Orthopaedics, Toronto), James Welchman (elective in Primary and Emergency Care, Papua New Guinea)and Henry May(elective in Emergency Medicine, Johanesburg). Anil and James were present for the start of the meeting and were presented with £250 each by Mr K Jones (President)

Diabetes and the Foot

There are numerous diabetic morbidities that affect the foot.

The tide is rising and the prevalence of diabetes is increasing.
7% of the population will be diabetic by 2030.
Worryingly 25% of these will not know they have diabetic.

85% of the risk of developing diabetes is due to obesity.
1 in 7 NHS beds contains a diabetic patient at any one point in time.
10% of the NHS budget is spent on diabetes, this equates to £285 per patient records year.
Only 20% of diabetic have good control of HBA1c, cholesterol and blood pressure
There are 6000 diabetic related amputations in the UK every year.

Diabetic Neuropathy

Diabetic neuropathy can occur in 50% of diabetes and is commonest cause of peripheral neuropathy.
The pathogenesis is uncertain.
No universal diagnostic criteria have been defined although presence of sensory neuropathy is detected with monofilament testing (filament exerts a 10g force)
Neuropathy can be associated with neuropathic pain and tramline arterial calcification on imaging
Annual foot check is needed as a minimum and this can take little time: "30 second foot check"

Diabetic foot Ulceration.

Diabetic foot ulceration can be caused by:
Macro or micro vascular disease
Sensory, motor or autonomic neuropathy
Mechanical factors such as pressure points, shearing or trauma.

15% of diabetic patients will have an ulcer in their lifetime.
1.4-2.9% of diabetic patients have a current ulceration.
There is a 50% chance of further ulceration after one ulcer.
Diabetic patients who have had a foot ulcer are 2-3x more likely to have an amputation.

Ulceration can lead to osteomyelitis.
An "Acute foot attack" is a surgical emergency and pus needs to be drained urgently. Prompt action can be limb/life saving.

Treatment of ulceration and infection
Is the foot salvageable?
Optimise vascular status and diabetic control
Investigate with MRI and inflammatory markers
Drain pus and debride if needed
Take deep tissue cultures and treat appropriately with antibiotics if deep infection confirmed
"Stimulan" beads can be impregnated with abx and packed into infected joints after surgical debridement
Offload the ulcer with Medishoe, total contact casting or diabetic walker boot.
Regular dressing changes with debridement of ulcer edges required
Address risk factors once healed.

Charcot Arthropathy
Rapidly destructive acute arthopathy that can affect one or a group of joints.
Pathogenesis is probably a combination of osteoclast overactivity combined with repetitive microtrauma in an insensate foot.
The acute presentation can he mistaken for cellulitis
Breakdown of the midfoot bones can occur in a few weeks. Joint destruction leads to deformity, bony prominence, ulceration, infection and the risk of amputation
The key treatment intervention is early and rapid offloading of the foot.

Total contact cast is used but weekly review needed and sometimes treatment needed for 18 months.
Circular external fixation frames can also be used and tissues are easily visible. Deformities can also be corrected over time.
Early "super-fixation" can be used if no infection and if foot can be off loaded.

Diabetes and elective foot and ankle surgery
19% of patients undergoing foot surgery are diabetic.
Infection rates are higher (13% vs 3%)
Infections are more likely to be severe and require a return to theatre.
1st MTPJ arthrodesis has a 35% complication rate in diabetic patients
Although, diabetics with no neuropathy have the same risks as non-diabetics
As complication rates are higher, informed consent is important.

Ankle Fractures in diabetics
Surgical intervention risks are higher in diabetic patients but conservative risks are even higher.
The amputation risks following ankle fracture is 5% in diabetic patients vs 0.4% in non-diabetics.
The risks are further increased if there is neuropathy and vascular disease in addition to diabetes.
Derby (and other hospitals) have set up protocols if diabetic patients are casted following ankle fracture.
Different colour casts are used for diabetes with neuropathy to ensure that ulceration risks are reduced.

Summary
Increasing prevalence of diabetes means more foot problems.
MDT approach needed
Proactive approach to surveillance needed
High index of suspicion for complications
Can be a rewarding patient group to treat and satisfactory outcomes are possible.

There were many questions on the subjects of:

How many diabetic patients with complications seen in Orthopaedic clinic?
Is digital photography used to assess progress of ulcers?
Localised metatarsal head prominence without ulceration? There is a shortage of Orthotists in RDH, SM would consider surgery.

Why so many screws are used in diabetic bone fixation? Screws in diabetic bones do not have a lot of purchase in isolation. Bones also take longer to heal in diabetics - some trials looking at pamidronate to reduce osteoclast activity.
Tips to differentiate between Charcot foot and cellulitis?
X-rays and reliability of detecting osteomyelitis? It can take 6 weeks for infection to show on XR
Foot protection and question of prophylactic antibiotics
Evidence for hyperbaric oxygen? Not enough evidence for use on NHS.

Register 19 members
2 students

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Mr K Jones, President, Derby Medical Society