Background

- Diabetic Foot (DF) is a major complication of long standing diabetes, secondary to microangiopathy, macroangiopathy and neuropathy.
- Foot ulceration is common, affecting up to 25% of patients with diabetes during their lifetime.
- DF account for nearly 35% of all hospital admissions in diabetic clinics.
- DF is responsible for nearly 60% of all non-traumatic amputations of the lower limbs.
- DF absorbs some 20% of the total health-care costs of the disease more than all other diabetic complications.

Epidemiology – Indian Scenario

- In India prevalence of foot ulcers in diabetic patients in clinic population is 3%.
- This is much lower than the western population due to younger age and shorter duration of diabetes.
- In India, 55% of foot ulcers are Neuropathic, 35% are neuroischaemic & 10% are Ischaemic.
- DF accounts for nearly 35% of all hospital admissions in diabetic clinics.
- DF is responsible for nearly 60% of all non-traumatic amputations of the lower limbs.
- DF absorbs some 20% of the total health-care costs of the disease more than all other diabetic complications.

Objective

- To conduct a comprehensive overview of recent advances and evidences which would have important impact to improve the management of diabetic foot.

Methods

- Electronic databases (Medline, Pubmed) were searched.
- The literature published from August 2012 till July 2013 was included in the review.
- The search criteria included – “diabetic foot”, “diabetic ulceration”, “complications of diabetes”, “amputation of limbs in diabetics”.
- Peer reviewed case studies, observational studies, case control and cohort studies using the specific MeSH and text ‘Diabetic Foot’ were also included.
- Bibliographies of retrieved papers for additional references were hand searched and included for analysis.

Results

- A total of 611 papers published during last 1 year were analyzed.
- 26 clinical trials have been published, of which 13 have been conducted under randomized controlled setting.
- 30 case reports, 5 meta analysis, 3 consensus statement and practice guidelines and 49 review articles have been published.
- 22 papers from India have been published of which 2 have been clinical trials.

Discussion

- Risk Factors
  - Diabetic foot generally occur secondary to diabetic neuropathy.
  - Neuropathy occurs either singly or is associated with Peripheral arterial disease (PAD).
  - PAD presents in half of patients with DFU, is an independent predictor of limb loss and can be difficult to diagnose in a diabetic population.

Summary Points

- Due to an unclear etiology, the treatment options for diabetic wounds are far from satisfactory.
- However, recent advances have provided newer understandings to manage diabetic wounds.
- Evidence for the better understanding of the diabetic wound healing process, epidemiological trends, prevention, medical, surgical management, is rapidly evolving.
- Interesting approaches like clinical application of autologous mesenchymal stem cells, near-infrared spectroscopy prediction of healing, interventions to reduce the oxidative stress are being evaluated from higher level of evidence.
- Meta-analysis reveals that treatment with hyperbaric oxygenation improved the rate of healing and reduced the risk of major amputations in patients with diabetic foot ulcers.
- There is an emerging evidence for aberrant epigenetic mechanisms in diabetic foot ulcers.
- There is a need for a comprehensive foot care model.

Conclusion

- Significant gaps exist for novel approaches to emerge from the bench to bedside, with most of the current studies are still under evaluation and limited to experimental conditions.
- There is room for improvement in secondary preventative measures for diabetic foot infections.
- Educational campaigns may be beneficial to educate diabetics on the dangers of walking barefoot; the importance of appropriate footwear, regular foot inspection, and the importance of seeking immediate medical attention instead of experimenting with home remedies.

References