

Diabetic foot care in mainland China



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Diabetes is a major non-communicable disease worldwide. There are now some 40 million people with diabetes – and a similar number with impaired fasting glucose or impaired glucose tolerance – in mainland China alone (China News, 2008). Among those with diabetes, diabetic foot disease is becoming a serious health burden, impacting negatively both on peoples' quality of life and on healthcare budgets.

The First and Second Diabetic Foot Groups of the Chinese Diabetes Society were founded in 1996 and 2002, respectively. The groups aimed to establish a campaign to improve diabetic foot care in China. This included the participation of the Second Diabetic Foot Group in the *International Consensus on the Diabetic Foot*, which was published by the International Diabetes Federation (International Working Group on the Diabetic Foot, 2003).

The Third Diabetic Foot Group of the Chinese Diabetes Society was founded in October 2008 and is currently active. This group aims to recruit new members from fields not specifically diabetes related, such as orthopaedic and vascular surgery, but whose contribution to diabetic foot care is essential.

Over the past 5 years, various national meetings on diabetic foot disease and its management and prevention have been held at both local and national levels in China. A number of international experts in the field of diabetic foot care have been invited to China for lectures and clinical visits.

The International Forum on Diabetic Foot and Related Diseases was held in Beijing in 2005 and 2006, in Kunming in 2007, and in Chengdu in 2008. Some 400–500 delegates attended each of these 3-day meetings. Workshops were held, during which approximately 100 participants were divided into groups to learn how to conduct basic examinations of the diabetic foot and

investigations for peripheral vascular disease. A range of topics were covered, including taking an ankle–brachial pressure index and ulcer dressing choice. The workshops were mostly attended by physicians and nurses from teaching hospitals. Many attendees asked the Diabetic Foot Group to hold similar workshops in the future. To date, more than 1500 healthcare professionals have participated in diabetic foot care training provided by the group.

In August of this year, the 5th International Forum on Diabetic Foot and Related Diseases was held simultaneously with the 6th Asia–Pacific Diabetic Limb Problems Meeting in Beijing. More than 500 participants from 16 countries took part. Speakers included Professors Robert Frykberg, Andrew Boulton, David Armstrong, Benjamin Lipsky and Dennis Yue, as well as Marg McGill, Senior Vice-President of the International Diabetes Federation.

There are now more diabetic foot clinics in China than ever before, with seven new centres established in the past 5 years. However, relative to the size of the population with diabetes, there remains too few diabetic foot centres. The clinic at which I work has treated more than 350 people with diabetic foot problems over 5 years. We have been able to achieve a reduction in the amputation rate from 11.5% 5 years ago to 7.2% (mostly minor amputations) today.

Some newer techniques for the management of diabetic foot disease have been used in Chinese clinics. These include vascular intervention (stents, *Figure 1*), and the transplantation of autologous peripheral blood stem-cells for the treatment of peripheral vascular disease. Autologous platelet-rich gels and negative pressure therapy have also been used for the treatment of hard-to-heal ulcers, with some diabetic foot centres achieving positive results. Some Chinese physicians treat foot problems with a combination of Western medicine and traditional Chinese medicine.

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China News (2008) [Rapidly increasing prevalence of diabetes in China.] (In Chinese) Available from: <http://tinyurl.com/yfnwsfz> (accessed 26.10.09)

International Working Group on the Diabetic Foot (2003) *International Consensus on the Diabetic Foot and Practical Guidelines on the Management and the Prevention of the Diabetic Foot*. International Diabetes Federation, Amsterdam

Xu Z (2007) *The diabetic foot in China*. 5th International Symposium on the Diabetic Foot, 9–12 May 2007, Noordwijkerhout, The Netherlands

In an effort to increase the amount of literature available to healthcare professionals with an interest in the diabetic foot working in China, the Diabetic Foot Group has undertaken a number of initiatives. The *International Consensus on the Diabetic Foot* (International Working Group on the Diabetic Foot, 2003) has been translated into Chinese and is now in its second print run, with 6000 copies distributed to-date. The

group has worked with experts from a range of fields to produce books that introduced topics on the care of the diabetic foot. The output of literature from China has likewise increased. The number of scientific articles published by practitioners working in diabetic foot care in China has risen dramatically, from 6 in 1996 to 360 in 2006.

In 2004, the Diabetic Foot Group organised research involving 14 teaching hospitals located in cities around China. A range of topics were investigated, including the classification and pathogenesis of diabetic foot disease and peripheral arterial disease, and the cost of diabetic foot disease to hospitals. People ($n=634$) with diabetes and foot problems or peripheral arterial disease admitted from 1 January to 31 December 2004 were included in this research.

Neuropathy was present in 68.0% of participants, hypertension in 57.4%, peripheral arterial disease in 28.7%, coronary heart disease in 28.5%, cerebral vascular disease in 24.3%, and 38.8% were smokers. Foot ulcers were, in the majority (82.2%) of cases, at Wagner stage 1 or 2. In 42.7% of cases, more than one ulcer was present, and 67.9% of ulcers were complicated by infection. Ulcers were commonly neuroischemic. The average direct medical cost to the hospital attributable to diabetic foot disease or peripheral arterial disease in people with diabetes was ¥RMB 14 906/person (\$US 1850/person). Our results were presented at the 5th International Symposium on the Diabetic Foot held in The Netherlands (Xu, 2007).

Diabetic foot disease is becoming a serious health and economic burden in China and around the world. The First, Second and Third Diabetic Foot Groups of the Chinese Diabetes Society have looked to provide healthcare professionals working in China with more information on, and clinical skills in, the management of diabetic foot disease. Practitioners in China look forward to increasing national and international cooperation between those with an interest in the care of the diabetic foot, through knowledge-sharing and participation in research. ■

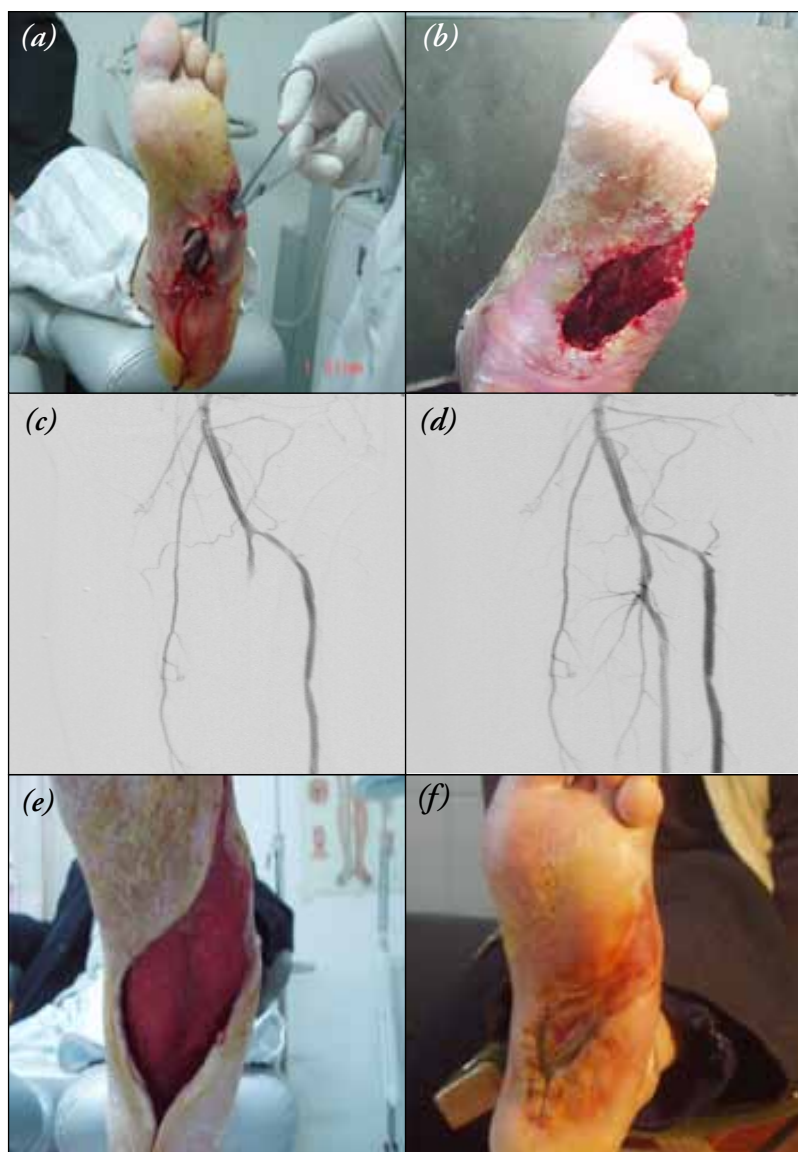


Figure 1. Ischaemic ulcer (a) upon admission to hospital and (b) shortly after. Reperfusion was undertaken, the vascular supply is shown (c) before and (d) after intervention. The ulcer (e) 2 weeks after the intervention, and (f) 2 months after the intervention.