

Amit Jain's Triple Assessment of Foot in Diabetes — a rapid screening tool



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Diabetic foot is on the increase with prevalence rates of diabetes growing around the world. In spite of this, it is frequently a neglected entity in many countries. Screening of the diabetic foot serves to identify any underlying problem and helps one to immediately institute preventive and therapeutic measures. There are few screening tools currently used for diabetic foot. Amit Jain's Triple Assessment of Diabetic Foot is a new, fast and easy screening tool from the Indian subcontinent that addresses the classic triad of the diabetic foot (neuropathy, ischemia, and infection) both specifically and effectively.

Diabetes mellitus is a serious disease that affects almost all the vital organs in the body (Singh et al, 2013). The global prevalence of diabetes is estimated to increase from 4.0% in 1995 to 5.5% by the year 2025 (Ramachandran, 2007). Diabetic foot ulcers affect 15%–25% of people during their lifetime (Giovinco and Miller, 2015; Seid and Tsige, 2015). The ulcers are prone to infections, chronicity and recurrences, and between 5–24% of them may result in limb amputation (Singh et al, 2013; Seid and Tsige, 2015). Due to this, there are direct costs of treatment and indirect costs relating to loss of productivity, individual patient and family costs, and loss of health-related quality of life (Seid and Tsige, 2015). The diabetic foot is a classical triad of neuropathy, ischaemia and infection (Pendsey, 2010).

In many Asian countries, neuropathy is more common and the prevalence of peripheral vascular disease is low compared to West (Ramachandran, 2007; Singh et al, 2013). Despite a knowledge of the outcomes of diabetic foot, foot evaluation is often neglected in clinical practice. Data have shown that diabetic foot is adequately evaluated only 12% to 20% of the time (Kuhnke et al, 2013). In fact, diabetic foot screening is the least followed of the four recommended care components of routine diabetic prevention (Kuhnke et al, 2013).

Screening of diabetic foot

The author had divided foot evaluation into screening and thorough examination, and there is difference in both these method of evaluation (Jain, 2017). There are very few screening methods for diabetic foot as a whole; they are In-low's

60-second diabetic foot screening (Murphy et al, 2012), Simplified 60-second diabetic foot screening (Woodbury et al, 2015) and Amit Jain's Triple Assessment for Diabetic Foot (Jain, 2017).

Amit Jain's triple assessment is the fastest known screening tool in the world and it addresses the triad of diabetic foot (Pendsey, 2010; Jain, 2017). This screening method evaluates foot through three methods, namely the 'Look, Feel and Test' (Jain, 2017).

The 'Look' component of the triple assessment of the foot aims to identify infection/ulcer or even the precursor for ulcer, the callosity. One needs to see the dorsum of the foot [Figure 1], plantar surface [Figure 2] and the inter-digital area [Figure 3]/web spaces (Jain, 2017).

The 'Feel' component aims at detecting the ischaemia. One can assess the adequate circulation by feeling the dorsalis pedis artery [Figure 4], anterior tibial artery or the posterior tibial artery [Figure 5].

The 'Test' component of triple assessment aims at detecting the neuropathy. One can utilise any one of the following methods/instrument in isolation or in combination and they include the monofilament test [Figure 6], tuning fork, pin prick test, biothesiometer, etc (Jain, 2017). The tuning fork and biothesiometer are used to assess vibration sensation, whereas the pin prick/ monofilament is used to test touch sensation (Jain, 2017).

Advantages of Amit Jain's Triple Assessment for Diabetic Foot

- It is very simple
- It is easy to remember

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- It is practical
- It evaluates all three of the diabetic foot triad
- It can be used as a teaching tool
- It can be easily performed by all healthcare professionals
- It can help in medico-legal issues as this screening method can serve as a minimum and mandatory evaluation that needs to be documented in patient records.

Amit Jain's single and double assessment

Often, after completion of triple assessment, the clinician will have to resort to a simple assessment in follow up and that is the 'Look' component. Double assessment is conducted in certain patients, such as those in ICU. In these cases, one can only assess the 'Look' and 'Feel' components (Jain, 2017).

Conclusion

Amit Jain's Triple Assessment for Diabetic Foot is, to the author's knowledge, the fastest screening tool that is proposed from the Indian subcontinent. It should be considered to be a minimum and mandatory evaluation to be carried out by every physician, nurse or healthcare professional as it addresses all the triad of diabetic foot effectively. WINT

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Figure 1. (above left). Dorsum of the foot.
Figure 2. (above right). Sole of the foot.



Figure 3. The inter digital area/web space.



Figure 4. (above left). The palpation of dorsalis pedis artery. Figure 5. (above right). The palpation of the posterior tibial artery.



Figure 6. The monofilament test.

Expert Commentary: considerations for a rapid screening tool for the diabetic foot



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Diabetic foot ulcers are complications that are observed at a high rate and are, without question, costly to the healthcare system. Screening exams have been created to allow a variety of healthcare providers to perform quick and efficient exams to determine the urgency for referral to foot and ankle specialists. This first step in prevention can prevent future ulceration and amputation, along with the morbidity and mortality associated with these complications.

We have read and appreciate the work of Jain and his triple assessment of diabetic feet as a screening tool (Jain, 2018). This concept is not dissimilar to efforts culminating in the 2008 Comprehensive Diabetic Foot Exam (CDFE) of the American Diabetes Association (Boulton et al, 2008). In the CDFE, we made efforts to ensure that key portions of the examination could be done in any environment — even without electricity. This was ultimately further reduced to a 3-minute diabetic foot exam (Miller et al, 2014), that we felt could be used to meet local and regional needs on a global scale. Jain's efforts are a further local refinement of that effort.

The physical examination component of the 3-minute diabetic foot exam is the basis to Jain's "look, feel, and test" method for screening, and addresses the vascular, neurological, dermatological, and musculoskeletal elements of the foot and ankle exam. We would like to note

that biothesiometers, tuning forks and monofilament wires are not readily found in the wards, and likewise may not be found in the office of a primary care provider. Therefore, the Ipswich Touch Test may be performed as a suitable alternative to the neurological exam, or "test" portion of the assessment (Rayman et al, 2011; Miller et al, 2014). The Ipswich Touch Test relies only on the examiner's hand and does not require additional instrumentation (Miller et al, 2014). The final minute of the 3-minute diabetic foot exam is dedicated to patient education. Education and instruction to the diabetic patient is needed to actively involve them in preventative care which, in turn, will reduce the incidence of devastating complications.

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