Shocking pain relief

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Welcome to the final diabetic foot digest for the year. The paper I have chosen is a follow-up study survey from a multicentre study conducted in the US. The aim was to evaluate the longer-term efficacy of 10 kHz spinal cord stimulation (SCS) in managing painful diabetic neuropathy (PDN) using a follow up survey 2 years after the initial 24-month SENZA study.

In short, the previous study was a RCT that enrolled subjects with PDN symptoms for at least 12 months without relief from standard pharmacological treatments. Subjects were randomised to either conventional drug-based therapies (CT) or SCS with CT. The study protocol permitted CT group to crossover to the SCS arm if pain relief was inadequate after 6 months of treatment. Pain symptoms were recorded using several validated tools including visual analog scale (VAS), quality of life EuroQol 5- Dimensional 5-Level instrument (EQ-5D-5L), and rated their overall change in health status using the 7-point Patient Global Impression of Change (PGIC). Additionally, their HbA_{1c} and BMIs were recorded.

All subjects returned to routine clinical care after completion of SENZA. After 2 years, the 142 subjects receiving SCS were contacted for a post- study survey. Of these, 57 patients consented for the long-term post study survey. Of the 85 not included, 83 were either unreachable or declined and two had died.

Subjects completed a verbal survey reporting on their current lower limb VAS pain intensity on a 0-10 scale using the NRS pain scale to accommodate telephone- based data collection. They also completed the EQ- 5D- 5L and PGIC questionnaires, and provided their most recent HbA_{1c} level and weight measurement (both within the last 6 months). These were compared with the original recorded data

The survey captured subject outcomes at a median of 4.1 years after SCS implantation. The results showed that 76.8% (43 out of 56) subjects reported clinically meaningful pain relief (≥2 points), and 84.6% (44 out of 52) reported improvements in their EQ-5D-5L index score, with a final mean score of 0.825. Additionally, 74.5% (38 of 51) reported feeling "better" or "a great deal better" on the PGIC scale. Interestingly subjects also reported a mean HbA_{1c} level decrease of 0.4% ($p=0.027$), with a more substantial improvement of 1.6% ($p<0.001$) in those with type 2 diabetes (T2D) and those with high preimplantation HbA_{1c} (>8%). Significant weight loss was also observed, with a mean reduction of 7.0 kg ($p<0.001$) in the overall cohort and 8.7 kg ($p<0.001$) in the subgroup with T2D and a higher BMI at preimplantation (≥35 kg/m_2).

SCS for those with moderate to severe PDN symptoms could a justifiable treatment, given the poor long-term pharmacological outcomes. This survey suggests that outcomes from the SENZA 2-year data are not only maintained but may even be improved, especially given that SENZA outcomes reported up to 80% pain reduction, improved sleep and even improvements in neurological parameters. Notable flaws are that it relied on subject self-reporting, rather than investigator obtained. Another significant issue is that reports from 87 of the initial subjects were not obtained; thus, this data must be viewed with care. ■

Petersen EA, Sills SM, Stauss TG et al (2025) Long-term efficacy of 10 kHz spinal cord stimulation in managing painful diabetic neuropathy: a post-study survey. *Pain Pract* 25(5): e70023

Am J Kidney Dis

Longitudinal patterns of ankle-brachial index and their association with progression of CKD in patients with type 2 diabetes and elevated body mass index

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 The study examined the relationship between ankle-brachial index (ABI) and chronic kidney disease (CKD) progression in patients with type 2 diabetes (T2D) and increased BMI.

2 This was a post hoc analysis of the Look AHEAD trial and included 3,631 subjects. Average ABI and average annual change in ABI were calculated based on measurements in the first 4 years of the study.

3 During a median follow-up of 10.1 years, 1,051 participants had CKD progression. There was a reversed J-shaped relationship of CKD progression with average ABI and average annual change in ABI.

4 The authors concluded that low and high-average ABI, even at clinically normal values, as well as decreasing and increasing average annual ABI, were associated with a higher risk of CKD progression in patients with T2D and increased body mass index. Monitoring ABI over time may facilitate CKD risk stratification in patients with T2D.

Liu M, Zhang Y, Zhang Y et al (2025) Longitudinal patterns of ankle-brachial index and their association with progression of CKD in patients with type 2 diabetes and elevated body mass index. *Am J Kidney Dis* 85(1): 36-44.e1

Surgery

Negative-pressure wound therapy compared with advanced moist wound therapy

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓

1 This randomised controlled trial aimed to compare the efficacy of negative-pressure wound therapy (NPWT) with advanced moist wound therapy in managing diabetic foot ulcers (DFUs).

2 The authors randomised 450 people with DFUs to receive either NPWT (n=204) or advanced moist wound therapy (n=246) over 18 months. The primary outcome was complete ulcer closure, with secondary outcomes including time to closure, wound size reduction, infection rates, recurrence and amputation.

3 There were statistically significant differences in outcomes. In the NPWT group, complete ulcer closure was achieved in 177 patients (87%) versus 72 patients (29%) in the moist wound therapy group. The mean time to wound closure was marginally longer in the NPWT group, but these patients had more significant wound area reduction. NPWT was associated with markedly reduced wound infection, ulcer recurrence and amputation rate.

4 The authors determined that NPWT is significantly more effective than advanced moist wound therapy in treating DFUs, with superior outcomes in wound closure, infection control and amputation prevention.

Gu H, Zhao X, Sun Y et al (2025) Negative-pressure wound therapy compared with advanced moist wound therapy: a comparative study on healing efficacy in diabetic foot ulcers. *Surgery* 180: 109098

Diabetes Care

Cellular versus acellular matrix products for diabetic foot ulcer treatment

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 The authors carried out this study to determine whether cellular matrix (CM) products result in better healing rates than acellular matrix (ACM) products for nonhealing diabetic foot ulcers (DFUs).

2 This was a randomised, single-blinded, three-arm controlled trial. Patients (aged ≥18 years) with a full-thickness nonhealing DFU who met inclusion/exclusion criteria were enrolled.

3 For 12 weeks, 117 patients received standard of care (SOC, n=28), CM (n=41) or ACM (n=48). The primary outcome was the percentage of wounds healed by 12 weeks. Complete re-epithelialization of the ulcer by 12 weeks occurred in 59% of the participants in all groups – 49% in the CM group, 69% in the ACM group and 57% in the SOC group. At 28 weeks, 25 participants (61%) in the CM group, 27 (56%) in the ACM group, and 18 (64%) in the SOC group had healed.

4 The authors found no difference in efficacy between SOC, ACM, and CM, suggesting that SOC can reduce the economic burden of diabetic foot ulcer treatment.

Shawa H , Kaur R , Tchanque-Fossuo C et al (2025) Cellular versus acellular matrix products for diabetic foot ulcer treatment: the Dermagraft and Oasis Longitudinal Comparative Efficacy study (DOLCE) – a randomized clinical trial. *Diabetes Care* 48(6): 966–73

J Diabetes Sci Technol

Improvement in protective sensation: clinical evidence from a randomized controlled trial for treatment of painful diabetic neuropathy with 10 kHz spinal cord stimulation

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓✓

1 The researchers evaluated the long-term effects of high-frequency (10 kHz) paresthesia-independent spinal cord stimulation (SCS) on protective sensation in the feet and the risk of foot ulceration for individuals with painful diabetic neuropathy (PDN).

2 In this randomised, controlled trial, 216 participants with PDN were randomised to receive either conventional medical management (CMM) or SCS plus CMM. At study visits (baseline through 24 months), 10 g monofilament sensory assessments were conducted at 10 locations per foot.

3 Participants in the SCS group had increased numbers of sensate locations compared to CMM alone ($p<0.001$) and were significantly more likely to be at low risk of ulceration. The proportion of low-risk participants approximately doubled from pre-implantation to 3 months post-implantation.

4 The authors concluded that 10 kHz SCS provides the potential to reduce ulceration, amputation, and other severe sequelae of PDN.

Argoff CE, Armstrong DG, Kagan ZB et al (2025) Improvement in protective sensation: clinical evidence from a randomized controlled trial for treatment of painful diabetic neuropathy with 10 kHz spinal cord stimulation. *J Diabetes Sci Technol* 19(4): 992–8

"SCS for those with moderate to severe PDN symptoms could a justifiable treatment, given the poor long-term pharmacological outcomes"