Digital Nerve Care Forum: Innovative Healthcare Professionals Education on Neuropathy

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ABSTRACT

Neuropathy is a common complication of diabetes, rarely detected on time, often deprioritized by treating physicians, and hence rarely managed in time, leading to avoidable complications which can be limb and life-threatening. Despite introducing new diagnostic tests, novel potential bio parameters, and a series of relatively small intervention studies utilizing detailed phenotypic profiling, the management of diabetic neuropathy (DN) and painful DN has remained unchanged due to misdiagnosis. The diagnostic complexity of diabetic peripheral neuropathy (DPN), variation in patient response to treatment, and regulatory pressures to meet data-driven quality metrics for diabetes management all likely contribute to the underdiagnosis and treatment of DPN in clinical practice. Educating the primary healthcare providers and diabetic trainers would help improve the number of diagnosed DPN cases as these practitioners lead public health literacy.

The digital nerve care forum (NCF) is an educational initiative created by clinical experts and Procter & Gamble (P&G) health academy. Its primary aim is to generate awareness amongst healthcare practitioners (HCPs) about early diagnosis and timely management of DPN. Since its inception in October 2020, NCF has conducted 143 engagements; 39 neuropathy case puzzles, four interactive case-based discussions, two diagnostic workshops, four mentor-mentee nerve talk shows, two intercountry nerve talk shows, two global neuropathy awareness week initiatives, three nerves of steel (Women's Day special engagements), and 17 NCF times (Newsletters).

This online forum is hosted on a global HCP education and upskilling platform, MediSage, which offers these educational resources to HCPs worldwide for free. It has helped create a community of 254, 714 HCPs from 86 countries across six continents supported by 30 neuropathy experts from seven countries. With a repeated viewership of 53% of HCPs engaging continuously, NCF empowers this community to improve diabetic patient care. Activities that increase disease awareness and highlight the importance of diabetic nerve health have been the key objectives behind the several educational programs on NCF. To drive this continuum, these digital programs are now becoming more phygital and impactful than ever. Therefore, earlier detection of DPN in at-risk individuals and those with prediabetes or type 2 diabetes is recommended for better management through optimal intervention and lifestyle changes and to prevent future complications of untreated DPN.

INTRODUCTION

Peripheral neuropathy (PN) alludes to the disease conditions characterized by damage to the peripheral nervous system, which serves as a communication link between the central nervous system and other body parts. PN is a common complication associated with diabetes mellitus (DM). According to the International Diabetes Federation 2021, it is estimated that 537 million people will have diabetes, which is projected to reach 643 million by 2030, and 783 million by 2045.

The PN in people with diabetes can have life-altering effects. Diabetes is a primary cause of lower limb amputation and 50% of patients with diabetes will suffer a foot ulcer during their lifetime. In addition, neuropathic pain and loss of feeling can cause various adverse effects, such as falls, reduced quality of life, limitations on daily activities, and depression symptoms.

Although persons without diabetes can develop peripheral neuropathy, glycemic control primarily focuses on the prevention and management of peripheral neuropathy in diabetes. Additionally, pain treatment is still crucial in managing diabetic neuropathy (DN) and lifestyle strategies like exercise and weight loss are becoming more popular.

Several surveys have shown that around 50% of diabetic patients with PN are undiagnosed and every eighth patient has never reported their symptoms. Numerous acute, chronic, focal, and widespread neuropathy symptoms are brought on by diabetes; however, diabetic PN (DPN) makes up the vast majority of DN, comprising 75% of the total number. Other types of nerve damage include diabetic neuropathic cachexia, cranial neuropathy, diabetic autonomic neuropathy, mononeuropathies, mononeuropathies, mononeuropathies, lumbosacral radiculoplexus neuropathies, and treatment-induced neuropathy in diabetes. A patient may experience different types of neuropathies. DPN's pathophysiology still needs to be fully understood. Some academics suggest prolonged hyperglycemia exposure and cardiovascular risk factors can be linked to DPN. The current methods of evaluation and diagnosis, including flare reactions, skin biopsies, and nerve biopsies, are challenging to perform and unpopular with patients.

Testing for laboratory indicators for DPN is effective therapeutic and preventive measures for DPN and DPN-related pain is paramount. Indeed, without the same established medical infrastructure and resources necessary for early detection, low and middle-income countries in the world may be characterized by a higher number of people diagnosed with diabetes after the onset of complications. The prevalence of DPN was 33.3%, of whom 52.2% were at risk of diabetic foot ulcer, and 53.6% were undiagnosed due to lack of awareness.

Thus, better systems for screening that identify individuals with undiagnosed diabetes earlier in the disease process, thus allowing the opportunity for treatment, will reduce morbidity and mortality associated with this disease.

The usage of digital media has grown at an alarming rate in the last few years in India.

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In a national survey conducted among Indian healthcare professionals (HCPs), it was found that the digital mode of engagement was the most accepted by HCPs. During the pandemic era, most physicians felt overwhelmed by a huge number of educational webinars. This has made the interactions between pharmaceutical firms and HCPs explore digital channels as medical representatives (MRs) were not able to efficiently reach the HCPs. As the growing incidence of DPN is considered, it becomes essential to provide awareness regarding managing strategies for DPN and assess the problems faced by HCPs during its management. Hence, considering physicians’ satisfaction, Procter and Gamble (P&G) Health and Medisage came up with a unique mode of engagement, the nerve care forum (NCF)—a platform where global experts could come together and discuss the real-world clinical cases of DPN.

**Materials and Methods**

**The Nerve Stimulating Format (NSF)**

The present section deals with the total number of NSFs organized by P&G Health and Medisage. It features numerous engagements with exclusive nerve care HCPs concerning extensive neuropathic knowledge and diagnostic workshops. This furthermore comprised a plethora of neuropathy case puzzles and interactive sessions. Women are acknowledged to have “nerves of steel” and don’t capitulate to challenges, but they are often impeded from realizing their full potential; so, it is crucial to promote awareness associated with neuropathy; hence, the forum has taken the initiative for Global Neuropathy Awareness.

**Clinical Knowledge Pearls**

The modern era’s digital advancement has revolutionized the world at our fingertips, especially in neuropathy and nerve care. In an effort to keep doctors informed, P&G Health and Medisage introduced NCF so that they could exchange their clinical knowledge pears with the community.

**Nerves of Steel Initiative**

Nerves of steel was an initiative from medical & technical affairs (M&TA) during Women’s Day week aimed to focus on nerve health and women. This initiative includes a global interactive panel discussion with regional digital opinion leaders with curated content and sharing their insights on DPN in women.

**Neuropathy Clinical Case Studies**

Neuropathy is a complex condition that often presents a wide range of symptoms though early detection is key to effective management. Unfortunately, it is usually diagnosed too late and leads to several uncontrolled neurologic harms and severe pain. Therefore, the neuropathy clinical case study program was launched to provide real-world cases emphasizing the adequate monitoring, diagnosis, and care of PN to promote a better understanding of early varied and unrecognized symptoms of PN. National neurology experts presented ten neurological case studies focused on PN. On the contrary, ten endocrinological case studies were presented on diabetes neuropathy by five national endo/diabetology experts. This program’s achievable targets were a preventive approach, myelin regeneration, and nerve protection.

**Clinic: Gold for Postgraduate (PG) Students**

This forum offers education to PG students for the early and timely diagnosis of neuropathy to alleviate the detrimental impact on quality of life. The PG Diagnostic workshop was launched in March 2022 exclusively for the 100 PG neurology students in person via telecast. It comprised 2 hour workshops with four experts, one chairperson, and one moderator. The program was aimed to educate and enhance awareness amongst PG students via one-on-one training on diagnostic tools for early and easy diagnosis of PN and DPN.

**Diagnostic Workshops for Physicians**

The NCF offers clinical insights to physicians for the adequate monitoring, diagnosis, and care of PN to improve the effectiveness of treatments and avoid long-term consequences.

**Engagement of HCP Communities**

The digital survey was undertaken to establish the number of HCPs engaged in multiple specialties, such as endocrinology, general practitioners, consulting physicians, neurology, medical students, and others. As a result, the highest viewership was successfully collected and reported.

**Impact of NCF and Behavior Shift of Communities**

The impact of NCF was calculated based on the robust audience and touchpoints in distinct nations to monitor the success of NCF within the community of HCPs in these countries. To tackle the satisfaction score and comprehension of topics covered in diagnosing and managing neuropathy, a behavioral shift was perceived.

**Global Footprint of HCPs on NCF**

The global footprint of HCPs engaged on life, and archived content across the globe, including Northern countries (United Kingdom, Russia), Southern countries (India, Sri Lanka, South Africa, Australia, Malaysia), Western countries (Canada, United States) and Eastern countries (Saudi Arabia, United Arab Emirates, Philippines) was assessed. However, few of them are documented in the present article.

**Results and Discussion**

The present section deals with the comprehensive outcomes of the NCF.

**The Nerve Stimulating Formats**

Nerve gurus from the NCF provided advice on the PN in women on the occasion of Women’s Day. They suggested the following key insights:

- Do not neglect the sensory symptoms like tingling, numbness, burning feet, and pain.
- Prioritize your diet and avoid eating leftovers.
- It can affect the patient’s quality of life, so it is crucial to address the symptoms and prevent DNP by controlling blood glucose.
- Increase the uptake of micronutrients in daily diet.

The total number of NSF-encompassing microsites that features organized by P&G Health along with Medisage are represented in (Table 1).

<table>
<thead>
<tr>
<th>Table 1: Nerve stimulating formats</th>
<th>Number of formats</th>
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</thead>
<tbody>
<tr>
<td>S. No.</td>
<td>Nerve stimulating formats</td>
</tr>
<tr>
<td>1</td>
<td>Engagements with experts</td>
</tr>
<tr>
<td>2</td>
<td>NCF times</td>
</tr>
<tr>
<td>3</td>
<td>Mentor-mentee nerve talk shows</td>
</tr>
<tr>
<td>4</td>
<td>Intercountry nerve talk shows</td>
</tr>
<tr>
<td>5</td>
<td>Diagnostic workshops</td>
</tr>
<tr>
<td>6</td>
<td>Neuropathy case puzzles</td>
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<tr>
<td>7</td>
<td>NCF express</td>
</tr>
<tr>
<td>8</td>
<td>Interactive case-based discussions</td>
</tr>
<tr>
<td>9</td>
<td>Nerves of steel (Women's Day special engagements)</td>
</tr>
<tr>
<td>10</td>
<td>Global neuropathy awareness week initiatives</td>
</tr>
</tbody>
</table>
Digital Nerve Care Forum

Clinical Knowledge Pearls
Credible Neuropathy Cases
The nerve care folks discussed the rare clinical studies on the DNP and described its diagnosis and monitoring. For example, a 47-year-old female with severe ulceration on her footsole for 10 days presented decreased urine output. She was diagnosed with uncontrolled diabetes and septicemia with acute kidney injury. The patient was treated with intravenous (IV) antibiotics along with insulin. The ulcerations were appropriately dressed with local dressings. Unfortunately, it took 6 months for the healing of ulceration.

Some antituberculosis drugs, such as isoniazid and ethambutol (damage to optic nerve), are likely to develop DPN in primary care.

The experts provided some advice to prevent the DPN as follows:
- Patients were advised to inspect their feet daily.
- Wear cotton socks.
- Don’t walk with bare feet.
- Always wear soft clothes.
- Maintain nail hygiene.
- Don’t take a bath with soft clothes.
- Long-term treatment of pain modulators can lead to toxic effects.

Diagnostic Workshops for Physicians
Until now, two digital workshops have been conducted for physicians by P&G Health and Medisage on diagnosing and managing PN. However, patient history, examination, and investigation are essential tools for diagnosing PN effectively. Management of PN includes the LEMON phenomenon that is expressed below
- L: Lifestyle modification.
- E: Endocrine optimization.
- M: Metabolic optimization.
- O: Orthopedic optimization.
- N: Nutritional optimization.

Engagement of HCP Communities
Pushing boundaries across the globe, P&G Health, in collaboration with Medisage, convened a digital forum featuring 86+ countries, 60+ engagements, 257,714 HCPs, 30 neuropathy experts, and 17 million touchpoints. The endocrinology community explored the largest proportion of viewers, followed by the other communities, with 53% repeat audience (Table 2).

Impact of NCF and Behavior Shift on Communities
The nerve care express, executed in two countries with a total online presence of 1113 and a 700+ physical audience, was indeed an achievement of a new “Phygital engagement” strategy. The overall audience satisfaction score after events was 4.09/5.00. Around 50% of the HCPs acknowledged the subjects covered helped them improve their understanding of diagnosing and managing neuropathy (Fig. 1).

Table 2: Engagement of HCP communities

<table>
<thead>
<tr>
<th>Engagement of HCPs</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>General practitioners</td>
<td>4%</td>
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<tr>
<td>Consultant physician</td>
<td>15%</td>
</tr>
<tr>
<td>Medical student</td>
<td>3%</td>
</tr>
<tr>
<td>Neurology</td>
<td>3%</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>47%</td>
</tr>
<tr>
<td>Others</td>
<td>28%</td>
</tr>
</tbody>
</table>

Global Footprint of HCPs on NCF
The forum has 37,000+ HCPs engaged in live content and 200,000+ HCPs on archived content from across the globe, including Northern countries (UK, Russia), Southern countries (India, Sri Lanka, South Africa, Australia, Malaysia), Western countries (Canada, United States) and Eastern countries (Saudi Arabia, United Arab Emirates, Philippines) to name a few.

A closer look at evidence-generation studies in these countries revealed that the diabetes prevalence ranged from 18.8 to 61.9% (India), 15.9% (Thailand), 44.4% (Nepal), 25.1% (Sri Lanka), and 63.5% (Indonesia), indicating that painful DPN is to be adequately addressed. Therefore, a maximum HCP engagement was observed from these countries in the NCF.

Conclusion
Given the epidemic explosion of diabetes worldwide, the high prevalence of this complication, and its clinical and socioeconomic consequences, effective and preventive measures for DPN and DPN-related pain are paramount. A few decades ago, neuropathy was considered a “firefighting” condition since there were only fewer specialists who dealt with neuropathy. But, in today’s world, the underestimation of PN is mainly due to a lack of consensus guidance on routine screening, diagnosis and management. This lack of awareness and urgency in diagnosing leads to increased 5-year mortality in patients.

Also, DPN places a significant economic burden on people with type 2 DM and national healthcare systems. Due to the substantial impact that DPN has on patients’ health, quality of life, and healthcare costs, the American Diabetes Association currently recommends that screening for DPN may be performed in all adults at the time of diabetes diagnosis and annually after that to reduce the complications and health-related burden associated with the disease. Therefore, there is a need to amplify awareness and literacy among both physicians and patients to detect neuropathy early for quick intervention for a more promising outcome rather than the later stage complications.

A research study inferred that HCPs could be targeted through digital and social media platforms. To create awareness or inform HCPs on the most recent developments in healthcare and their areas of interest, e-learning is an emerging platform that is heavily employed with the right tools for gaining engagement and upskilling doctors in low and middle-income countries. A “phygital approach,” or a physical interaction with the HCPs through medical representatives (MRs) from the healthcare organizations followed by digital means of disseminating information (such as videos, podcasts, and QR codes), could be advised for healthcare organizations.

Fig. 1: Impact of NCF
Hence, the NCF has aimed at revolutionary change from a focus on diagnosing, managing, and controlling DPN to a continual improvement of patient quality of life, from emphasizing learning and achievement to building knowledge that has a social value from predominantly HCPs communities. The comprehensive data obtained from the NCF explored that it can be a successful and effective platform to address the complications regarding the DPN.

REFERENCES


