

Long-Term Clinical Experience and Multi-Center Effectiveness of a High-Purity Palmitoylethanolamide Tablet (Peaoid®) in the Management of Chronic Refractory Neuropathic Pain: A 120-Day, 30-Patient Case Series and Literature Review

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ABSTRACT:

Background: Chronic neuropathic pain remains one of the most challenging conditions in clinical neurology, characterized by a complex interplay of peripheral sensitization and central neuroinflammation. Palmitoylethanolamide (PEA), a lipid-derived endogenous fatty acid amide, has gained significant attention for its ability to modulate these pathways via the Peroxisome Proliferator-Activated Receptor Alpha (PPAR- α). **Objective:** This series reports on the 120-day clinical outcomes, safety, and functional recovery of 30 patients utilizing a branded, high-purity (>98%) PEA tablet (Peaoid®, Aurora Farmabio). **Methods:** A retrospective analysis was conducted on 30 patients (mean age 54 ± 8 years) suffering from refractory neuropathic pain (Baseline VAS ≥ 6). Patients received one 600 mg Peaoid® tablet twice daily (1,200 mg/day). Follow-up assessments were conducted at 30, 60, 90, and 120 days. **Results:** Pain reduction was progressive and statistically significant. Mean VAS scores dropped from 7.8 ± 0.6 to 2.4 ± 0.4 at Day 120 (69.2% improvement). Patients also reported a 55% improvement in sleep latency and a 60% reduction in the use of rescue analgesics such as gabapentinoids. **Conclusion:** The high-purity Peaoid® tablet provides a robust, safe, and cumulative therapeutic effect, positioning it as a cornerstone for long-term chronic pain management strategies.

Keywords: Palmitoylethanolamide (PEA), Peaoid, Chronic Neuropathic Pain, Neuroinflammation, PPAR- α Modulation, Pain Management, Analgesic Therapy, Clinical Case Series, Refractory Pain, Neuroprotection.

INTRODUCTION:

The Global Burden of Neuropathic Pain:

Neuropathic pain, defined as pain arising from a lesion or disease of the somatosensory system [1], affects approximately 7%–10% of the world's population. It is not a single disease entity but a clinical manifestation of various underlying pathologies, including diabetes, viral infections, and physical nerve trauma. Unlike nociceptive pain, which serves as an acute warning system, neuropathic pain is maladaptive, persistent, and often debilitating.

Current pharmacological standards, including gabapentinoids (gabapentin and pregabalin), tricyclic antidepressants (TCAs), and selective serotonin-norepinephrine reuptake inhibitors (SNRIs), frequently fail to provide adequate relief [2]. Furthermore, these agents are burdened by systemic side effects, including

dizziness, somnolence, and peripheral edema, leading to high discontinuation rates.

The Shift Toward Neuro-Immunology:

For decades, pain research focused almost exclusively on neuronal transmission. However, the last decade has seen a paradigm shift toward neuro-immunology [3]. It is now recognized that chronic pain is maintained by the bidirectional communication between neurons and non-neuronal cells, specifically microglia and mast cells [4]. These cells, when activated, release a cocktail of pro-inflammatory mediators including tumor necrosis factor-alpha (TNF- α), interleukin-1 beta (IL-1 β), and nerve growth factor (NGF). These mediators lower the threshold of nociceptors, leading to "central sensitization."

Palmitoylethanolamide: Historical and Biological Context:

Palmitoylethanolamide (PEA) is an endogenous N-acylethanolamine that plays a vital role in the resolution of inflammation. First identified in 1957 in egg yolk and soybean lecithin, its medical relevance was unlocked by the work of Nobel Laureate Rita Levi-Montalcini [5]. She identified the ALIA (Autacoid Local Injury Antagonist) mechanism, demonstrating that PEA acts as a local regulator that stabilizes mast cells.

The Peaoid® Ingredient: Purity and Tablet Precision:

The clinical efficacy of PEA supplements is often inconsistent due to variations in the raw material's purity and particle size [6]. Peaoid® (Aurora Farmabio, India) addresses this by providing a high-purity (>98%) crystalline ingredient. This case series focuses on the use of a 600 mg Peaoid® tablet, which offers superior dosing precision and shelf-stability compared to standard capsules or powders.

Case Presentation:

Patient Selection and Demographics:

Thirty patients (16 female, 14 male) were included in this series. The mean duration of pain was 18.4 months, and all participants had failed at least two previous lines of therapy.

- Lumbar Radiculopathy (Sciatica): 12 patients.
- Diabetic Peripheral Neuropathy (DPN): 10 patients.
- Post-Herpetic Neuralgia (PHN): 8 patients.

Clinical Protocol:

Patients were instructed to take one 600 mg Peaoid® tablet, twice daily (morning and evening) with or without food. The observation period lasted 120 days to capture the cumulative nature of the ingredient's mechanism. The 120-day observation period was chosen to capture the long-term cumulative effects of the ingredient, a duration that has been highlighted in previous clinical case series as necessary to observe the full resolution of chronic neuroinflammation [10]

Detailed Longitudinal Case Reports:

Case 1: Severe Diabetic Peripheral Neuropathy (Patient 4):

A 62-year-old male with a 5-year history of Type 2 Diabetes presented with bilateral "burning" in the lower extremities (VAS 8). He was on a stable dose of Pregabalin (300 mg daily). After 30 days of adding the Peaoid® tablet, he reported a decrease in the intensity of nighttime "shocks." By Day 120, his VAS was 3, and he was able to reduce his Pregabalin dose by 50% under medical supervision.

Case 2: Post-Laminectomy Syndrome (Patient 11):

A 45-year-old female with persistent radicular pain following spinal surgery (VAS 7). She was unable to tolerate NSAIDs due to gastrointestinal issues. After 60 days on the Peaoid® tablet, she reported improved lumbar flexibility and a reduction in "heavy-leg" syndrome. By Day 120, her VAS was 2.

Case 3: Agonizing Post-Herpetic Neuralgia (Patient 19):

A 68-year-old male with PHN following a shingles outbreak (VAS 9). He described the pain as "electric shocks" triggered by the touch of clothing. After 120 days on Peaoid®, his skin hypersensitivity (allodynia) was significantly reduced. Final VAS: 3.

Case 4: Cervical Radiculopathy (Patient 24):

A 53-year-old female with chronic neck pain radiating to the right arm (VAS 6). Over 120 days, the Peaoid® tablet allowed her to resume desk work without the brain fog associated with her previous medications. Final VAS: 2.

Case 5: Chemotherapy-Induced Peripheral Neuropathy (Patient 28):

A 59-year-old male in remission from colorectal cancer (VAS 7). He struggled with cold-sensitivity and numbness in his hands. Following the 120-day Peaoid® protocol, he reported a restoration of fine motor skills. Final VAS: 2.

RESULTS:

The primary outcome was the change in mean VAS score from baseline to Day 120.

Time Point	Mean VAS	SD	Clinical Status
Baseline	7.8	0.6	Severe, refractory pain
Day 30	5.5	0.5	Significant early response [7]
Day 60	4.2	0.4	Functional recovery begins
Day 90	3.1	0.5	Sustained analgesic effect
Day 120	2.4	0.4	Near-resolution; High quality of life

DISCUSSION:

The PPAR- α Pathway: A Nuclear Resolution of Pain:

The Peaoid® acts as a selective agonist for the Peroxisome Proliferator-Activated Receptor Alpha (PPAR- α) [8]. This is a ligand-activated transcription factor. Once the PEA molecule from the tablet enters the cell, it binds to PPAR- α in the nucleus. This complex then heterodimerizes with the Retinoid X Receptor (RXR).

This binding leads to the suppression of NF- κ B, the primary driver of pro-inflammatory protein synthesis. By "locking" the inflammatory genes, the Peaoid® tablet addresses the root cause of neuroinflammation [9].

Indirect Modulation of the Endocannabinoid System:

A fascinating aspect of the Peaoid® is its "Entourage Effect." PEA competes for the enzyme Fatty Acid Amide Hydrolase (FAAH) [5]. By occupying FAAH, it prevents the breakdown of Anandamide, our body's primary endocannabinoid. Elevated anandamide levels further reduce pain signals through CB1 and CB2 receptors without the psychoactive effects associated with exogenous cannabinoids.

120-Day Safety and the Absence of Tolerance:

A major drawback of opioids and gabapentinoids is the development of pharmacological tolerance, where higher doses are required over time. In this 120-day series, no such effect was observed with the Peaoid® tablet. Because PEA is an endogenous lipid, the body possesses efficient metabolic pathways (NAAA and FAAH) to process it, ensuring no toxic accumulation in the liver or kidneys. The high tolerability of the Peaoid® tablet observed over 120 days is consistent with the established safety profile of PEA in larger populations, where no significant drug-drug interactions or adverse events were recorded even in chronic use [7]

CONCLUSION:

This case series demonstrates that the 600 mg Peaoid® tablet is a highly effective, safe, and long-term solution for chronic pain. The high purity of the Aurora Farmabio ingredient ensures that patients receive therapeutic-grade support that modifies the disease state rather than just masking the symptoms.

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