Macedonian Pharmaceutical Bulletin, 72 (Suppl 1) 509 - 510 (2026)
Online ISSN: 1857-8969
DOI: 10.33320/maced.pharm.bull.2026.72.03.245
Short communication

Pharmacist-driven decision framework for complementary therapy in atopic dermatitis: rational use of omega-3, omega-6 fatty acids and vitamin D3

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Introduction

Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by epidermal barrier dysfunction, immune dysregulation with Th2-skewed inflammation, and recurrent exacerbations. It represents a multifactorial disorder with significant impact on quality of life, including pruritus, sleep disturbance, and psychosocial burden (Weidinger and Novak, 2016). Standard pharmacotherapy includes emollients, topical corticosteroids, calcineurin inhibitors, and biologic agents in severe cases. Despite established treatment options, patients frequently seek complementary or nutraceutical interventions, particularly omega-3 fatty acids, omega-6 fatty acids, and vitamin D3. However, the use of such supplements is often unstructured and not clinically guided, which emphasizes the need for a pharmacist-driven approach to ensure rational, safe, and evidence-based integration into AD management.

Materials and methods

This work represents a narrative review of published literature including randomized controlled trials, systematic reviews, and studies related to: omega-3 fatty acids (EPA/DHA), omega-6 fatty acids (linoleic acid), vitamin D3 in atopic dermatitis treatment, pharmacist-led interventions in chronic inflammatory diseases. Data were retrieved from PubMed and Cochrane Library databases.

Clinical evidence overview

Clinical evidence remains heterogeneous: omega-3 fatty acids show variable but biologically plausible effects on disease severity. Omega-6 fatty acids are essential for skin barrier maintenance. Vitamin D3 supplementation may improve AD severity, particularly in deficient individuals (Hattangdi-Haridas et al., 2019). Overall, current evidence supports a complementary and adjunctive role rather than standalone therapeutic use.

Pharmacist-driven decision framework for complementary therapy-expanded clinical role of the pharmacist

The pharmacist plays a central role in the management of atopic dermatitis, particularly in the integration of complementary therapies into standard treatment. Due to the chronic and relapsing nature of AD, patients frequently self-initiate nutraceutical supplementation without clinical supervision, creating a need for structured pharmacist intervention.

Pharmacist-led use of omega-3 fatty acids, omega-6 fatty acids, and vitamin D3 is clinically relevant

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when based on individual patient assessment and evidence-based rationale. Pharmacists are often the most accessible healthcare professionals and are therefore positioned to identify patients who may benefit from adjunctive nutritional support, including those with low dietary intake of essential fatty acids, limited sun exposure, or recurrent inflammatory flares. Importantly, the pharmacist does not simply recommend supplementation, but ensures its clinical appropriateness, safety, and integration with standard pharmacotherapy. This includes preventing irrational self-medication, avoiding inappropriate poly-supplementation, and ensuring the use of standardized, quality-controlled products.

Structured clinical decision-making

Complementary supplementation is integrated into a stepwise therapeutic approach: mild AD requires emollients plus nutritional support, moderate AD demands topical anti-inflammatory therapy plus adjunctive supplementation, severe AD- specialist therapy plus supportive nutritional modulation. Additionally, supplementation is targeted according to predominant clinical phenotype: inflammatory dominance - omega-3 fatty acids, barrier dysfunction -omega-6 fatty acids, immune dysregulation or deficiency risk - vitamin D3.

Prevention of irrational use and safety monitoring

Pharmacists play a key role in minimizing risks associated with uncontrolled supplementation, including: bleeding risk associated with high-dose omega-3 fatty acid, risk of hypervitaminosis D with excessive supplementation, variability in supplement quality and bioavailability, unnecessary poly-supplementation without clinical indication

Adherence improvement and patient counselling

Complementary therapy may improve patient engagement and perception of disease control, which is directly associated with better adherence to topical corticosteroids and emollients. Pharmacist counseling ensures that patients understand supplementation as adjunctive, not substitutive therapy, thereby reducing treatment abandonment.

Pharmacist as clinical mediator

The pharmacist acts as a mediator between patient expectations and clinical evidence, translating patient preference for “natural therapy” into evidence-based, structured complementary care. This role ensures continuity of pharmacological treatment while integrating safe and rational nutritional support.

Conclusion

Omega-3 fatty acids, omega-6 fatty acids, and vitamin D3 demonstrate biologically plausible benefits in atopic dermatitis through modulation of inflammatory pathways, skin barrier function, and immune regulation. However, current evidence supports their use only as adjunctive therapy.

The pharmacist plays a crucial role in developing a structured decision framework for complementary therapy by: identifying appropriate patients, ensuring rational and safe supplementation, integrating complementary and pharmacological therapy, improving adherence and patient education. This positions the pharmacist as an essential clinical decision-maker in the modern, multidisciplinary management of atopic dermatitis.

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