

PYRETHROID-BASED HAIR PREPARATIONS -WHAT A PHARMACIST NEEDS TO KNOW?

Jasmina Bašić^{1*}, Bisa Amidžić², Jelena Rajić³, Biljana Antonijević⁴

¹Academy of applied studies Belgrade, The College of Health Sciences, Belgrade, Serbia

² Institute of Chemistry, Technology and Microbiology, Belgrade, Serbia

³ Medicines and Medical Devices Agency of Serbia, Belgrade, Serbia

⁴ *University of Belgrade – Faculty of Pharmacy*, Department of Toxicology "Akademik Danilo Soldatović", Belgrade, Serbia

*basic.jasmina23@gmail.com

Pyrethroid-based preparations are available in the form of: anti-lice shampoos, sprays, gels and lotions to remove lice and nits. Pyrethrin is a natural mixture of chemicals, present in flowers from the chrysanthemum family. Pyrethroids are chemicals produced with a structure very similar to pyrethrins, but more toxic to both insects and mammals, and last longer in the environment. An analysis of 19 anti-lice preparations available in the pharmacies showed that 9 preparations contained, as an active component, one of the pyrethroid substances: permethrin, tetramethrin and phenothrin. Although the toxic potential of this group of compounds is low, side effects are possible, most often as a result of acute toxicity, which can manifest itself through disorders of the nervous system or allergic reactions. Another important mechanism of action are skin and respiratory system allergies. The most common side effects from the spectrum of allergic reactions are pruritus, skin irritation, erythema, tingling, blisters on the skin and eczematous changes, dermatitis with miliary red papules, eye irritation. Signs of neurotoxicity are associated with acute (inhalation and dermal) exposure: abnormal facial sensations (paresthesia), dizziness, headache, nausea, loss of appetite, blurred vision and chest tightness, lethargy and muscle fasciculations. Although they are recommended for oral scabies and lice, pyrethrin and pyrethroid-based preparations rarely cause side effects. It is important that the pharmacist warns and informs patients about the proper use of these preparations, especially due to more frequent use in the pediatric population showing increased sensitivity.

References

1. Macan J., Varnai MV., Turk R. Health effects of Pyrethrins and Pyrethroids, *Arh Hig Rada Toksikol* 2006;57:237-243
2. Agency for Toxic Substances and Disease Registry (ATSDR). Toxicological profile for Pyrethrins and Pyrethroids. Atlanta (GA): U. S. Department of Health and Human Services, Public Health Service; dostupno na: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=787&tid=153>

PREPARATI ZA VLASIŠTE NA BAZI PIRETROIDA – ŠTA FARMACEUT TREBA DA ZNA?

Jasmina Bašić^{1*}, Bisa Amidžić², Jelena Rajić³, Biljana Antonijević⁴

¹Akademija strukovnih studija Beograd, Visoka zdravstvena škola, Beograd, Srbija

²Institut za hemiju, tehnologiju i mikrobiologiju, Beograd, Srbija

³Agencija za lekove i medicinska sredstva Srbije, Beograd, Srbija

⁴Univerzitet u Beogradu – Farmaceutski fakultet, Katedra za toksikologiju
„Akademik Danilo Soldatović”, Beograd, Srbija

*basic.jasmina23@gmail.com

Preparati na bazi Piretroida su dostupni u obliku: šampona protiv vaši, spreja, gela i losiona za uklanjanje vaši i gnjida. Piretrin je prirodna mešavina hemikalija, prisutna u cveću iz porodice hrizantema. Piretroidi su proizvedene hemikalije po strukturi veoma slične piretrinima, ali toksičniji i za insekte, i za sisare, i duže traju u životnoj sredini. Analizom 19 preparata protiv vaši dostupnih u apotekama, utvrđeno je da 9 preparata sadrži, kao aktivnu komponentu, jednu od piretroidnih supstanci: permetrin, tetrametrin i fenotrin. Iako je toksični potencijal ove grupe jedinjenja nizak, moguće su neželjene reakcije, najčešće kao rezultat akutne toksičnosti, koja se može manifestovati kroz poremećaje na nivou nervnog sistema ili pojavu alergijskih reakcija. Prema mehanizmu delovanja ova jedinjenja su nervni otrovi koji deluju na prenošenje nervnih impulsa. Drugi važan mehanizam dejstva je alergogeno delovanje na koži i respiratornom sistemu. Najčešće štetno dejstvo iz spektra alergijskih reakcija je pruritus, iritacija kože, eritem, peckanje, plikovi na koži sluzokoži i ekcematozne promene, dermatitis sa milijarnom crvenom papulom, iritacija očiju. Znaci neurotoksičnosti su povezani sa akutnim (inhalacionim i dermalnim) izlaganjem: abnormalni osećaji na licu (parestezija), vrtoglavica, glavobolja, mučnina, gubitak apetita, zamagljen vid i stezanje u grudima, bezvoljnost i mišićne fascikulacije. U organizam se mogu uneti oralnim, inhalacionim i dermalnim putem. Iako u preporučenim dozama za lečenje šuge i vaški, preparati na bazi piretrina i piretroida, retko izazivaju neželjena dejstva, od izuzetne je važnosti da farmaceut upozori i dodatno informiše pacijente o pravilnom načinu upotrebe ovih preparata, naročito zbog češće upotrebe u pedijatrijskoj populaciji koja pokazuje povećanu osetljivost.

Literatura

1. Macan J., Varnai MV., Turk R. Health effects of Pyretrins and Pyrethroids, Arh Hig Rada Toksikol 2006;57:237-243
2. Agency for Toxic Substances and Disease Registry (ATSDR). Toxicological profile for Pyrethrins and Pyrethroids. Atlanta (GA): U. S. Department of Health and Human Services, Public Health Service; dostupno na: <https://www.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=787&tid=153>