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2nd International Conference on
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November 11-12, 2019 | London, UK

Keynote Forum

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TOXICOLOGY AND CLINICAL TOXICOLOGY

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Clinical and experimental data on Diphoterine solution decontamination of eye/skin chemical exposures

Diphoterine is an amphoteric, slightly hypertonic, polyvalent, sterile water-based eye/skin decontamination solution which combines passive flushing with active chemical decontamination. Reviews were published in French (Minaro et al, 2000) and Hall et al (2002). Since that time, many more studies of Diphoterine safety and efficacy, both pre-clinical and clinical, have been performed. This review describes earlier studies and details more current ones. Some of these were described in reviews at the Medichem Conference, Basel, Switzerland, 2016, at the AMPAT Congress, Singapore, 2016, and the AOHC Congress, Kaohsiung, Taiwan. Presented here are new not previously presented data.

Materials and Methods: A review of all new data since previous presentations was performed.

Results: Non-Clinical: In vitro/ex vivo comparative decontamination studies with phenol (acid) and tetraammonium hydroxide (TMAH) (base) have been performed. In both cases, Diphoterine solution decontamination was superior to water decontamination. Clinical studies have included a 20-year chemically-exposed eye study from Germany in which Diphoterine solution was found better than any other rinsing solution. A multi-center, multinational clinical study from France and Belgium showed the efficacy of Diphoterine solution for decontamination of chemically-exposed skin, eyes and oral membranes in the pre-hospital and emergency department settings. Similar results were found in a clinical study of occupational phenol exposure outcomes in Taiwan and exposure to various various caustic substances in India.

Conclusion: Based on previously published/presented data and data presented here, Diphoterine solution is a better choice than potable water or other rinsing solutions for first aid, pre-hospital and emergency department (even if delayed) decontamination of chemical eye/skin exposures.

Biography

Alan H Hall, M.D. is a board certified Medical Toxicologist and is President and Chief Medical Toxicologist of Toxicology Consulting and Medical Translating Services, Inc., Laramie, Wyoming. He is also Clinical Assistant Professor at the Colorado School of Public Health, Denver, Colorado and was formerly Clinical Assistant Professor of Preventive Medicine and Biometrics at the University of Colorado School of Medicine and Assistant Professor of Pediatrics. Dr. Hall was formerly Research Assistant Professor in the Division of Medical Toxicology, Department of Emergency Medicine, Texas Tech University Health Sciences Center, El Paso, Texas. He received his undergraduate degree from Indiana University South Bend, South Bend, Indiana from which university he has Division and University-wide Distinguished Alumnus awards. He received his Doctor of Medicine degree from the Indiana University School of Medicine, Indianapolis, Indiana. Dr. Hall has been in General Practice, trained in Anesthesiology and practiced Occupational and Environmental Medicine and Emergency Medicine.

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Laurence Mathieu is the head of the scientific action Group of PREVOR Laboratory. She is an engineer in chemistry and she has a PhD in organic Chemistry. Her research interests are decontamination of chemical exposures (eye, skin, skin carcinogenesis, digestive burns, inhalation) and chemical spills, dermonecrosis due to venoms (spiders, snakes, jellywash) in wound healing and scarring.

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Possible effects of Microplastic pellets on marine fish

Marine debris are found floating at the sea surface, on seafloor and on shorelines. Plastics that represents 60–80% of all marine debris are starting to replace images of sewage as a leading cause of pollution particularly in the ocean.

Microplastics considered as plastic debris pollution that constitute a major threat to marine life due to their persistence, ubiquity and vector for transferring persistence bioaccumulative toxins in the environment. Microplastics are small plastic debris less than 5 mm in size and can pose threat to marine organism. Small plastic pellets used for manufacture of plastic products end up in the marine environment through accidental spillage during transport. Owing to their small size and their occurrence in both pelagic and benthic ecosystems, microplastics have the potential to be ingested by marine biota such as zooplankton, mussels, fish, seabirds and whales.Plastic particles accumulating in the intestine of marine organisms can clog the digestive system and cause false sense of satiation leading to less food consumption. Ingestion of contaminated microplastics represents a unique exposure route of highly toxic chemical pollutants into the food web. Microplastics can act as a vector for the transport of sorbed contaminants and chemical additives when ingested by the living organisms. Ingesting microplastics can facilitate the transport of chemical contaminants to the organism. Recently, a study reported, for the first time, that some aged plastics could release estrogenic compounds in marine environment. Contaminants can incorporate into the marine plastic pellets by two possible mechanisms. The first possible mechanism is the adsorption of hydrophobic chemicals into the surface of the plastic resin pellets from seawater and second possible source is the synthetic chemicals contained in the plastic resin pellets as additives. In general, the microplastics ingestion by fish can interfere with biological processes and might cause health hazards.

Biography

Noura Al-Jandal has completed her PhD on 2011 from the University of Exeter, UK. She is an Associate Research Scientist in the Environmental and Life Sciences Research Center at the Kuwait Institute for Scientific Research working on endocrine disrupting chemicals effect on marine biota. She lead several client funded project and published the work in peer-reviewed journals. She is a member in the Associate of the Higher Education Academy (AHEA) and a qualified British Sub-Aqua Club (BSAC) Diving License Holder. She presented her work in several international conferences as a speaker. Currently she is working on projects of a high global significance such as microplastics assessment in Kuwait marine environment and submitted new proposal on microplastic pellets effect on fish to the client for funding and awaiting the funding approval.

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