



**Pt. B. D. Sharma Post Graduate Institute of Medical Sciences Rohtak
Multidisciplinary Research Unit**

MRU/2026/1803-1852

To

The Principal/ HOD
College/Department of _____
Pt. B. D. Sharma PGIMS/UHS/PGIDS
Rohtak

Dated: 25/9/2026

Sub: Regarding attend the Fortnightly Research Presentation Series (Webinar) organized by DHR.

In reference to the subject cited above, please find enclosed the notification, regarding the initiation of the Fortnightly Research Presentation Series (Webinar) among Multidisciplinary Research Units (MRUs), organized by the Department of Health Research (DHR). It is submitted that the 3rd session of the webinar series is scheduled to be held on 29.09.2026 (Tuesday) at 3:00 PM.

The webinar is being organized to promote scientific excellence, facilitate knowledge exchange, and foster collaborative research. To strengthen collaboration among MRUs through knowledge sharing and multicentric research, as well as enhancing research quality and translational impact by promoting best practices and innovation.

The invited speaker for the inaugural session is Dr. Ram S. Kaulgud, Associate Professor, Department of General Medicine, Karnataka Medical College and Research Institute, Hubballi. The session will comprise a 40-minute research presentation followed by 20 minutes of interaction/ Q&A with the online participants.

Topic: Serum Organophosphorus compound levels as a surrogate marker for severity assessment and management in Acute Organophosphorus Poisoning – A novel approach.

Please click the link below to join the event:

<https://teams.microsoft.com/join/457030534652193?p=TGxP2mfa96jVV9P7PC>

Meeting ID: 457 030 534 652 193

Passcode: U8tw2dq7

You are requested to kindly disseminate this information among the faculty members, researchers, students and other stakeholders of your Department.

We look forward to your active support and participation.


Dr. Sanjay Kumar
Professor, Deptt. of Pathology &
Nodal Officer, MRU
Pt. B. D. Sharma PGIMS
Rohtak

MRU/2026/

Dated: / /2026

A copy is forwarded to the following for information and necessary action:

1. P.A. to Director, Pt. B.D. Sharma, PGIMS, Rohtak, for kind information of the Worthy Director, please.

Dr. Sanjay Kumar
Professor, Deptt. of Pathology &
Nodal Officer, MRU
Pt. B. D. Sharma PGIMS
Rohtak



Serum Organophosphorus compound levels as a surrogate marker for severity assessment and management in Acute Organophosphorus Poisoning – A novel approach

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ABSTRACT

Organophosphorus (OP) compounds are the most extensively used pesticides' class worldwide; cause most self-poisoning deaths especially in India. Thus, it is utmost important for early identification and aggressive management of OP poisoning from the clinical perspective to prevent serious complications by using sophisticated LC-MS/MS approach. This was a prospective study involving 103 patients of OP cases admitted to Karnataka Institute of Medical Sciences from June 2022 to May 2023, based on the inclusion and exclusion criteria patients were subjected to study. On admission, venous blood was collected from patient with Malathion and Profenofos OP poisoning history and subjected to serum biomarker and to LC-MS/MS analysis. Out of the 103 patients, 68 patients consumed Profenofos (66%) and 35 patients consumed Malathion (34%). Pseudocholinesterase levels among the of OP cases revealed that the 33 patients had mild toxicity, 40 patients had moderate toxicity and 30 patients had severe toxicity of OP poisoning. Subsequently LC-MS/MS analysis showed that the results obtained are not in correlation with indirect serum marker pseudocholinesterase levels. On the other side, LC-MS/MS results are in correlation with the clinical outcome of the patients with respect to morbidity and mortality. Thus, LC-MS/MS approach to assess the OP levels in patients could be used as potential diagnostic and prognostic marker for the absolute quantification of OP compounds compared to indirect OP levels estimation.

1. Introduction

Pesticides are the class of chemical compounds used to control the growth of insects, which are responsible for the depletion of crops productivity. As per the WHO estimates, approximately 3 million pesticide poisoning occur worldwide and causing more than 0.2 million deaths and 1.9 million with other long term comorbidities [1–3]. Among all the pesticides studied, Organophosphate Pesticides (OPs) are considered as the largest group of pesticides used in agriculture, livestock, and other commercial purposes globally [4]. In spite of having several advantages of OPs in increasing the agricultural yield to meet the food demand of growing population, they are found to be potentially hazardous to the humans and other living beings in the environment [4, 5]. OPs are irreversible inhibitor of neurotransmitter acetylcholine esterase (AChE) and pseudocholinesterase (butyryl cholinesterase), which are involved in the reduction of acetylcholine (ACh) concentration by hydrolyzing ACh into choline and acetic acid/butyric acid. These

enzymes, plays an essential role for proper functioning of the human nervous system [6]. Exposure to OPs can lead to acute poisoning, in severe cases, OPs poisoning can lead to respiratory failure, cardiac arrest which can be life-threatening if not treated promptly [7]. One of the study conducted in India showed that the incidence of suicidal poisoning mortality using OPs accounted 10–44% in the hospitalized patients [8, 9].

The clinical features of OP poisoning comprise a three phasic response such as, initial acute cholinergic phase, high mortality associated intermediate phase and nonlethal delayed polyneuropathy associated with morbidity phase [10]. The cholinergic phase occurs immediately and last for hours, which usually includes excessive salivation, lacrimation, abdominal cramps, vomiting, urination, frothing from the mouth, sweating, bronchospasm, and fasciculation and sometime cause loose stools [11,12]. Thus, early identification and aggressive management of OP poisoning is significant from the clinical perspective to prevent serious complications and improve the chances of a full

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