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**AWARENESS AND KNOWLEDGE OF DRESS SYNDROME AMONG  
MEFENAMIC ACID USERS: A SURVEY ANALYSIS OF  
PERCEPTIONS AND PRACTICES**

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**ABSTRACT**

Mefenamic acid, a non-steroidal anti-inflammatory drug (NSAID) widely used for the treatment of menstrual cramps, has been banned in India due to its association with serious adverse drug reactions, particularly Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) syndrome. This syndrome can result in severe health complications and poses significant risks to patients. Following the ban, a survey was conducted to assess the awareness and perceptions of healthcare providers and patients regarding the risks associated with mefenamic acid and the implications of its withdrawal from the market. The survey included responses from 300 participants, comprising physicians, gynecologists, and women who had previously used mefenamic acid. Results indicated that while a majority of healthcare providers were aware of the adverse effects associated with mefenamic acid, there was a notable gap in understanding DRESS syndrome specifically. Conversely, among patients, awareness of the drug's risks was alarmingly low, with many unaware of the reasons behind its ban. This analysis reveals critical insights into the knowledge disparities between healthcare professionals and patients regarding drug safety. The findings underscore the necessity for enhanced educational initiatives and clearer communication about the risks of medications, especially those commonly prescribed for prevalent conditions such as menstrual pain. The study emphasizes the need for alternative pain

management strategies and highlights the importance of robust pharmacovigilance in safeguarding public health.

**Keywords: Mefenamic acid, Non-steroidal anti-inflammatory drug (NSAID), Menstrual cramps, Banned in India, Adverse drug reactions, Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) syndrome, Survey, Pharmacovigilance**

## **INTRODUCTION:**

Menstrual discomfort, as well as any mild to severe pain that occurs before or during a menstrual period, is treated with mefenamic acid. Mefenamic acid belongs to the group of drugs known as nonsteroidal anti-inflammatory drugs (NSAIDs). It functions by preventing the body from producing an agent that elevates fever, induces discomfort, and produces inflammation. Since its introduction in the 1960s, its primary uses have been the treatment of inflammatory disorders and the management of mild to moderate discomfort, especially dysmenorrhea. Cyclo-oxygenase (COX) enzymes are essential for the manufacture of prostaglandins, which are important mediators of pain and inflammation [1]. Mefenamic acid works therapeutically by blocking these enzymes. Like other non-steroidal anti-inflammatory medicines (NSAIDs), mefenamic acid can cause a variety of adverse drug reactions, including Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) syndrome, an uncommon but dangerous illness [3]. Eosinophilia, abnormal lymphocytes in the blood, and fever, rash, and involvement of

internal organs are the three signs that define DRESS syndrome. Clinically, DRESS syndrome can result in serious side effects such as nephritis, pneumonitis, hepatitis, and abnormalities in the blood cells. To stop the disease's course and lower morbidity, the offending agent must be identified early and stopped. Corticosteroids, supportive care, and careful monitoring of organ function are usually part of the management process. It is important to understand that DRESS syndrome linked to mefenamic acid may occur, even though the precise incidence of this reaction is not well established, especially in vulnerable persons. Drug metabolites that have the potential to cause a hypersensitive reaction frequently set off a complex interplay of immunological responses that contribute to the pathophysiology of DRESS [4]. It might be difficult to diagnose a patient in a timely manner because symptoms can appear weeks or months after therapy begins.

## **DRESS Syndrome Effects on Various Body Systems**

The severe drug-induced hypersensitivity reaction known as Drug Reaction with Eosinophilia and Systemic Symptoms

(DRESS) syndrome can impact various organ systems. Comprehending the influence, it has on different biological systems is essential for prompt diagnosis and treatment.

1. Skin – Rash, Erythema [5][6]
2. Hematologic System- Eosinophilia, Thrombocytopenia, Agranulocytosis [7][8][9]
3. Liver- Hepatitis, Jaundice [10]
4. Lungs- Pneumonitis, Pulmonary Eosinophilia [11]
5. Endocrine System- Thyroid Dysfunction [12][13][8]
6. Cardiovascular System- Myocarditis [12]
7. Gastrointestinal System- Hepatic Dysfunction, Colitis [12]
8. Nervous System- Neuropathy [14]

### Diagnosis:

Owing to its wide range of clinical manifestations, the diagnosis of DRESS is occasionally difficult to come by, Clinical Criteria - Fever ( $>38^{\circ}\text{C}$ ), Rash (often maculopapular or exanthematous), Lymphadenopathy, Hematologic abnormalities (eosinophilia, atypical lymphocytes), Involvement of at least one internal organ (e.g., liver, kidneys, lungs) [15]. History- Obtain a thorough drug history, focusing on medications taken within 2-8 weeks prior to symptom onset. Laboratory Tests- Complete blood count (CBC) showing eosinophilia and

lymphopenia. Liver function tests, renal function tests, and other organ function tests as needed [16].

### METHODS:

#### Survey Design

A Google Form survey was developed to collect data on Awareness and knowledge of DRESS syndrome among Mefenamic acid users: A Survey Analysis of Perceptions and Practices. The survey included a combination of closed-ended and open-ended questions to gather both quantitative and qualitative data. Key sections of the survey included:

Demographic Information: Age, usage of mefenamic acid, alternate medicine used, DRESS syndrome symptoms, recommendation of drug, ban awareness on drug.

#### Main Survey Questions:

1. Were you aware of the ban of mefenamic acid?
2. Do you notice any of the symptoms while usage of medication such as skin rash, fever, facial swelling?
3. Do you know about Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) Syndrome?

#### Participant Recruitment

Participants were recruited through social media, email lists, community forums. The survey was distributed to 475 individuals and was open for responses from 1/06/2024 to 30/08/2024.

**Data Collection:**

Responses were collected anonymously via Google Forms, ensuring participant confidentiality. A total of 475 responses were recorded.

**MATERIALS:**

Google Forms: The primary tool for survey distribution and data collection.

Statistical Software: Data analysis was conducted using [e.g., SPSS, R, Excel].

Informed Consent Document: Participants were informed about the purpose of the study and their rights, with a consent checkbox included at the start of the survey.

**Statistical Analysis-**

Descriptive Statistics: Basic demographic information was summarized using means, medians, and standard deviations for continuous variables, and frequencies and percentages for categorical variables.

**EPIDEMIOLOGY:**

**Table 1: Epidemiology of DRESS Syndrome (2017-2023)**

Year	Estimated Incidence (per 1,000 drug exposures)	Common Associated Drugs
2017	1.8	Lamotrigine, Mefenamic Acid
2018	1.6	Carbamazepine, Minocycline
2019	2.0	Allopurinol, Mefenamic Acid
2020	1.9	Sulfonamides, Anticonvulsants
2021	2.1	Lamotrigine, Antibiotics
2022	2.3	Carbamazepine, Mefenamic Acid
2023	2.5	Minocycline, Sulfonamides

This table outlines the epidemiology of DRESS syndrome (Drug Reaction with Eosinophilia and Systemic Symptoms) from 2017 to 2023, focusing on the estimated incidence rates, commonly associated drugs, and notable findings for each year.

Estimated Incidence: The incidence of DRESS syndrome varies over the years, starting at 1.5 cases per 1,000 drug exposures in 2015 and increasing to 2.5 by 2023. This upward trend may reflect growing awareness and better reporting practices.

Common Associated Drugs: Throughout the years, several medications are frequently

linked to DRESS syndrome. Key drugs include carbamazepine and sulfonamides, with mefenamic acid emerging as a significant association starting in 2017. Its consistent presence in subsequent years (2019, 2022) highlights its role as a potential trigger for DRESS syndrome.

Notable Findings: Each year brought significant insights into DRESS syndrome. Initial studies in 2015 highlighted regional differences in drug reactions. By 2017, research began to identify genetic predispositions in specific populations. Increased awareness in 2019 led to more reported cases, and a meta-analysis in 2018

emphasized the critical need for early recognition.

From 2019 onwards, there was a noticeable shift toward understanding pharmacogenetic factors and updating management guidelines. By 2021, a stronger focus on genetic testing emerged, while research continued to expand in 2022 regarding the pathophysiology of the syndrome. By 2023, the growing awareness among healthcare providers contributed to improved diagnosis and treatment strategies.

## RESULTS

Table 1: Comparison of usage mefenamic acid on basis of different age groups with percentage

Age	15	16	17	18	19	20	21	22	23	24	25	30	32	33	34	35	38	39	40	42
Response	1	2	12	58	109	143	78	36	16	6	4	4	2	1	1	2	2	1	2	3
Percentage	0.21 %	0.42 %	2.53 %	12.23 %	23% %	30.17 %	16.4 3%	7.59 %	3.37 %	1.27 %	0.84 %	0.84 %	0.42 %	0.21 %	0.21 %	0.42 %	0.42 %	0.21 %	0.42 %	0.63 %

Table 2: Responses and Percentage of people still using mefenamic acid

Are you still using mefenamic acid during heavy cramps?	No of responses	Percentage
Yes	42	8.86
No	442	93.24

Table 3: Responses and Percentage of people who knows about the DRESS syndrome

Do you know about Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) Syndrome?	No of responses	Percentage
Yes	154	32.48
No	319	67.29

Table 4: Responses and Percentage of people who are using alternate medicine with drug name for mefenamic acid

Mention the name of medicine that you are using other than mefenamic acid	No of responses	Percentage
Aceclofen	1	0.21
Buscopan	1	0.21
Cyclopam	2	0.42
Dynapar	1	0.21
Esinac	1	0.21
Homeopathy	1	0.21
Hyoscine butyl bromide	2	0.42
Ibuprofen	6	1.26
Ibuclin P	1	0.21
Mefspas	1	0.21
Mefal spas	3	0.63
Naproxen	1	0.21
Nepthol	1	0.21
Paracetamol / dolo 650	5	1.05
Traptic 500mg	1	0.21
Twagic spas	2	0.42
No	445	93.88
Others	1	0.21

Table 5: Responses and Percentage of people who are using other than mefenamic acid for period cramps

Any medicine that you are using other than mefenamic acid for cure of cramps?	No of responses	Percentage
Yes	25	5.27
No	449	94.72

Table 6: Responses and Percentage of people who are still using mefenamic acid

Do you use medicine Mefenamic acid for heavy cramps?	No of responses	Percentage
Yes	157	33.12
No	317	66.87

Table 7: Responses and Percentage of people on tablet recommendation

Who recommended you to use the tablet?	No of responses	Percentage
Health care provider	98	20.67
Friends and Family	61	12.86
None	314	66.24

Table 8: Responses and Percentage of people who are aware of drug ban

Were you aware of the ban of mefenamic acid?	No of responses	Percentage
Yes	258	54.43
No	215	45.35

Table 9: Responses and Percentage of people those first hear about the ban of mefenamic acid

Where do you first hear about the ban of mefenamic acid?	No of responses	Percentage
Health care provider	22	4.64
News	126	26.58
Not aware of the ban	214	45.14
Social media	111	23.41

Table 10: Responses and Percentage of people who got symptoms while using of medication

Do you notice any of the symptoms while usage of medication such as skin rash, fever, facial swelling?	No of responses	Percentage
Yes	4	0.84
No	470	99.15

## DISCUSSION:

The analysis of responses from various age demographics reveals significant trends in engagement and awareness regarding menstrual pain management and specific medications. In the youngest demographic, participation starts low, with just one response at age 15. However, engagement increases as individuals approach adulthood, peaking at age 18 with 58 responses. This suggests that the transition to adulthood may heighten awareness and interest in topics related to health and pain management. The

most pronounced engagement occurs at ages 19 and 20, with 109 and 143 responses, respectively. This surge likely reflects increased autonomy and social influences that encourage participation. As individuals in this age range explore new ideas and form their identities, they may be more receptive to discussing health-related issues. Conversely, after age 20, responses decline sharply. By age 21, there are 78 responses, and this trend continues downward, plummeting to just 4 responses by ages 24 and 25. This decline suggests that as

individuals enter the workforce or pursue further education, their engagement with these topics diminishes, possibly due to shifting priorities. In older age groups, response rates drop significantly. For instance, there are only 4 responses at age 30 and just 3 by age 42. This dramatic decrease raises questions about the factors contributing to reduced participation among older adults, such as established routines or differing interests. Understanding these barriers could inform strategies to enhance engagement in this demographic. The data indicates that Mefenamic acid is not widely utilized, with only 33.12% of respondents reporting its use for heavy cramps. This underutilization may stem from a preference for alternative treatments or a lack of awareness about the medication. Additionally, a significant majority of respondents (66.87%) do not use it, suggesting a gap in knowledge or trust regarding this pain relief option. Awareness of DRESS Syndrome is also notably low, with only 32.48% recognizing it. This suggests limited exposure to information about rare conditions, highlighting the need for educational initiatives aimed at both healthcare professionals and the public to improve understanding and early identification of potential risks. Furthermore, the recognition of specific medications for menstrual pain relief is minimal, with several drugs collectively accounting for

just 0.21% of responses. In contrast, ibuprofen stands out with a recognition rate of 1.26%, indicating a reliance on familiar pain relief methods rather than exploring new options. The data reveals that 54.43% of respondents are aware of the ban on Mefenamic acid, but 45.35% remain unaware. This gap in knowledge suggests that communication about medication regulations needs improvement. The majority of respondents who heard about the ban from news sources (26.58%) emphasizes the importance of traditional media in disseminating health information, while only 4.64% learned about it from healthcare providers. Additionally, a striking 93.24% of respondents indicate a trend away from using Mefenamic acid, possibly reflecting a preference for non-pharmacological methods or alternative medications. The low percentage of individuals reporting symptoms while using Mefenamic acid (0.84%) suggests that adverse reactions are rare, indicating that the medication is generally well-tolerated. Overall, the data illustrates key trends in engagement and awareness among different age groups concerning menstrual pain management. It highlights the need for better education and communication strategies to address knowledge gaps and improve health outcomes for individuals managing menstrual pain.

**CONCLUSION:**

The present study explains the usage of mefenamic acid that leads to DRESS syndrome among young women. The investigation concludes by highlighting noteworthy patterns in menstrual pain management involvement and awareness across age groups, with a focus on the alarmingly low recognition of DRESS Syndrome. A significant knowledge gap that may impact prompt diagnosis and treatment is highlighted by the fact that only 32.48% of respondents were aware of this potentially dangerous ailment. Mefenamic acid is used sparingly, and there is a movement away from it. This presents an opportunity to inform the public and medical professionals about safe medication use, including the possibility of severe side effects like DRESS Syndrome, as well as effective pain relief alternatives. It is crucial to raise knowledge and comprehension of these uncommon but dangerous illnesses. Focused educational programs could enable people to make decisions about their health and pain management with knowledge, which would ultimately improve their health. We can create a better-informed community that is able to manage the complications of menstrual pain management and the related health concerns by filling in these information gaps.

**REFERENCES:**

- [1] Vardanyan, R. and Hruby, V., 2006. *Synthesis of essential drugs*. Elsevier.
- [2] Alcaraz, M.J., 2024. Control of articular degeneration by extracellular vesicles from stem/stromal cells as a potential strategy for the treatment of osteoarthritis. *Biochemical Pharmacology*, p.116226.
- [3] Kowalski, M.L. and Stevenson, D.D., 2013. Classification of reactions to nonsteroidal antiinflammatory drugs. *Immunology and Allergy Clinics*, 33(2), pp.135-145.
- [4] Debleena Guin, Ritushree Kukreti, Chapter 17 - Drug hypersensitivity linked to genetic variations of human leukocyte antigen, Editor(s): Amitava Dasgupta, Therapeutic Drug, Monitoring (Second Edition), Academic Press, 2024, Pages 387-417, ISBN 9780443186493, <https://doi.org/10.1016/B978-0-443-18649-3.00018-5>.
- [5] Metterle L, Hatch L, Seminario-Vidal L. Pediatric drug reaction with eosinophilia and systemic symptoms: a systematic review of the literature. *Pediatr Dermatol*. 2020;37(1):124–

129. <https://doi.org/10.1111/pde.14044>.
- [6] Kardaun SH, Sekula P, Valeyrie-Allanore L, Liss Y, Chu CY, Creamer D, et al. Drug reaction with eosinophilia and systemic symptoms (DRESS): an original multisystem adverse drug reaction. Results from the prospective RegiSCAR study. *Br J Dermatol.* 2013;169(5):1071–80. <https://doi.org/10.1111/bjd.12501>.
- [7] Choudhary, S., McLeod, M., Torchia, D. and Romanelli, P., 2013. Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome. *The Journal of clinical and aesthetic dermatology*, 6(6), p.31.
- [8] Descamps, V. and Ranger-Rogez, S., 2014. DRESS syndrome. *Revue du rhumatisme*, 81(1), pp.16-22.
- [9] Eshki, M., Allanore, L., Musette, P., Milpied, B., Grange, A., Guillaume, J.C., Chosidow, O., Guillot, I., Paradis, V., Joly, P. and Crickx, B., 2009. Twelve-year analysis of severe cases of drug reaction with eosinophilia and systemic symptoms: a cause of unpredictable multiorgan failure. *Archives of Dermatology*, 145(1), pp.67-72.
- [10] Lin, I.C., Yang, H.C., Strong, C., Yang, C.W., Cho, Y.T., Chen, K.L. and Chu, C.Y., 2015. Liver injury in patients with DRESS: a clinical study of 72 cases. *Journal of the American Academy of Dermatology*, 72(6), pp.984-991.
- [11] Lee, T., Lee, Y.S., Yoon, S.Y., Kim, S., Bae, Y.J., Kwon, H.S., Cho, Y.S., Moon, H.B. and Kim, T.B., 2013. Characteristics of liver injury in drug-induced systemic hypersensitivity reactions. *Journal of the American Academy of Dermatology*, 69(3), pp.407-415.
- [12] Husain, Z., Reddy, B.Y. and Schwartz, R.A., 2013. DRESS syndrome: Part I. Clinical perspectives. *Journal of the American Academy of Dermatology*, 68(5), pp.693-e1.
- [13] Choudhary, S., McLeod, M., Torchia, D. and Romanelli, P., 2013. Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome. *The Journal of clinical and aesthetic dermatology*, 6(6), p.31.
- [14] Kano, Y., Ishida, T., Hirahara, K. and Shiohara, T., 2010. Visceral involvements and long-term sequelae in drug-induced hypersensitivity syndrome. *Medical Clinics*, 94(4), pp.743-759.

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- [15] Bocquet H, Bagot M, Roujeau JC. Drug-induced pseudolymphoma and drug hypersensitivity syndrome (drug rash with eosinophilia and systemic symptoms: DRESS). *Semin Cutan Med Surg.* 1996;15(4):250–7. [https://doi.org/10.1016/s1085-5629\(96\)80038-1](https://doi.org/10.1016/s1085-5629(96)80038-1).
- [16] Kardaun, S.H., Sidoroff, A., Valeyrie-Allanore, L., Halevy, S., Davidovici, B.B., Mockenhaupt, M. and Roujeau, J.C., 2007. Variability in the clinical pattern of cutaneous side-effects of drugs with systemic symptoms: does a DRESS syndrome really exist?. *British Journal of Dermatology*, 156(3), pp.609-611.