Original Article

Knowledge of the Human Monkey Pox Infection among Medical Practitioners in Punjab, Pakistan

Romaisa Khalid, Sumera Ehsan, Ayesha Khalid, Khalid Mahmood

ABSTRACT:

Objective: To assess the knowledge of medical practitioners regarding The Human Monkey Pox Infection.

Methodology: A cross sectional study was performed between June 2022 and August 2022 among medical practitioners in Punjab, Pakistan especially the medical practitioners from major cities including Lahore, Faisalabad, Multan. Data was collected through an online, self-administered questionnaire. Piloting was done and feedback was taken. All the registered doctors working in different areas of Pakistan were included in this study. All non-registered doctors, nurses and paramedical staff were excluded from this study. Ethical approval was taken from the Office of the Ethical Review Committee, Faisalabad Medical University, Letter number: 48-ERC/FMU/2021-2022/232. Data was analyzed using SPSS version20.0.

Results: Out of the 250 participants, 52(20.8%) were house officers, 78(31.2%) were medical officers,78(31.2%) were postgraduate residents and 16.8% were consultants. Among 250 participants, 170(68%) were in between the ages of 23 to 33, 16.4% between 34 to 44 and 39(15.6%) were between 45 to 55 years of age. Our 229(91.6%) participants were aware of The Human Monkey Pox Infection [HMPI] and 8.4% were not aware of HMPI. Only 115(46%) participants consider HMPI similar to smallpox. Majority of the respondents were aware of the predominant symptoms of the HMPI. Only 116(46.4%) participants consider 2nd and 3rd generation small pox vaccines to be effective against The Human Monkey pox Virus [HMPV].

Conclusion: This study shows the knowledge of medical practitioners is relatively low. But considering the fact as being a newly emerging disease in Asian countries the overall response of doctors was a bit reasonable. Due to high alert by WHO there is an utmost need of training sessions for medical practitioners.

KEYWORDS*:* Knowledge, Human monkey pox infection, Medical practitioners.

INTRODUCTION

Human Monkey Pox is a viral zoonosis caused by the Monkey Pox virus (MXPV), an enveloped double stranded DNA virus belonging to the genus orthopoxvirus of poxviridae family.[1] MPXV was first discovered during an outbreak amongst monkeys at a Danish laboratory in 1958. [2] It was first identified as a human pathogen in the Democratic Republic of the Congo (DRC, formerly Zaire) in 1970. [3] MPX is typically found in the tropical rain forests of the Congo basin (CB) and West Africa (WA), and DRC continues to report most cases each year [4], mainly in children under 10 years.

The first outbreak outside of Africa was in United States of America in 2003.[5] In May 2022 multiple cases of monkey pox were reported in several non-endemic countries.[8] raising a moderate global threat for all communities.[9] Owing to this fact WHO has advised all countries to be on alert for patients presenting with rashes evolving different

Dr. Romaisa Khalid *MBBS*
Faisalabad Medical University.
Dr. Sumera Ehsan *MBBS, MME*
Prof. Faisalabad Medical College,
PMC, FMC, FSD. Pakistan.
Ayesha Khalid
2nd Year MBBS
Faisalabad Medical University, FSD, Pakistan
Dr. Khalid Mahmood *PhD*
Senior Scientist,
Ayub Agriculture Research Institute, FSD, Pakistan.

Correspondence:
Dr. Romaisa Khalid
Email: romaisakhalid96@gmail.com

sequential stages.[9] In the light of Who's advice, Federal Government in Pakistan has declared high alert against monkey pox. Though up till today no monkey pox case has been reported in Pakistan.[10] The Human Monkeypox virus has a mean incubation period of about 6 to 13 days leading to The Human monkeypox infection that has similar clinical manifestation to the Small pox infection with lymphadenopathy as a differentiating feature.[5] The patient infected with HMPV presents with fever, myalgias headache, lymphadenopathy and skin lesions preferably on the face and extremities.[6] The rashes evolve from maculopapular to vesicular to pustular and crust off that eventually falls, labelling a patient noninfectious. The human-to-human spread of the HMPV is via contact with the body fluids of the infected person. [16] Vertical transmission can lead to congenital HMPI.[17] The HMPI responds well to symptomatic management including increased hydration, antipyretics, antivirals and antibiotics for secondary bacterial infections. Second and Third generation small pox vaccinations have been declared effective for the control of the HMPI. So, WHO has recommended vaccination of all the high-risk individuals and post exposure vaccination within 4 days of 1st exposure for every exposed person.

Health care team forms the basic pillar in combating any epidemic. Knowledge of health care workers especially the doctors constitute the basis of response of the nation towards any evolving medical emergency in the country.

METHODOLOGY

This cross-sectional study was conducted from June 2022 to august 2022 among the medical practitioners serving in the public and private sectors in Punjab, Pakistan especially the medical practitioners from major cities including Lahore, Faisalabad, and Multan. Ethical approval was taken from the Office of the Ethical Review Committee, Faisalabad Medical University, with letter number: 48-ERC/FMU/2021-2022/232. For enrollment of participant's convenient sampling technique was used. Calculated sample size was 250 participants. A self-structured questionnaire was formed using the previous literature and was validated from senior doctors. Piloting was done and feedback was taken using 10 forms. Data was collected through Google forms by sharing links through personal contacts. All the registered doctors working in different areas of Pakistan were included in this study. All non-registered doctors, nurses and paramedical staff were excluded from this study.

Statistical Analysis: Data was analyzed using SPSS version20.0. Categorical variables are presented as percentages and frequencies.

RESULTS

Out of the 250 participants 52(20.8%) were house officers, 78 (31.2%) were medical officers, 78(31.2%) were postgraduate residents and 42(16.8%) were Consultants. Our 170(68%) participants were in between the ages of 23 to 33, 42(16.4%) between 34 to 44 and 39(15.6%) were between 45 to 55 years of age. In this study 229(91.6%) were aware of HMPI and 237(94.8%) participants correctly answered it as a viral infection. Whereas 191(76.4 %) participants know that HMPV is easily transmissible and out of these, only 90(36%) participants are aware of its transmission through body fluid. Surprisingly, 181(72.4%) were aware of the vertical transmission of HMPV. Only 131(52.4%) participants were aware of the incubation period of 6 to 13 days. Only 115(46%) participants correctly consider HMPI similar to smallpox. Medical practitioners were also inquired regarding the clinical presentation of HMPI and we received the results as shown in table no. 1. Percentage of doctors who have answered correctly is mentioned in accordance to the professional status.

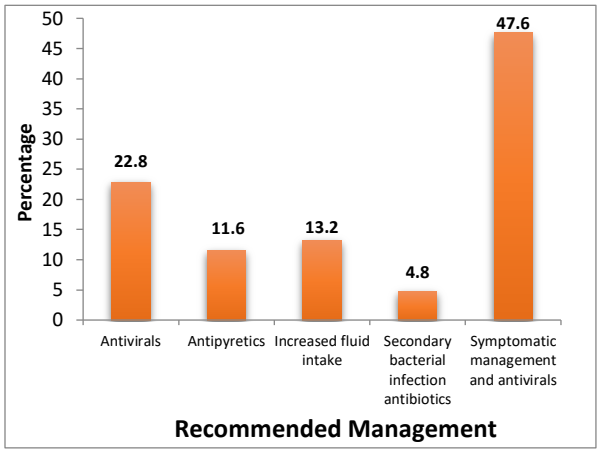
Table 1: Knowledge of Physicians Regarding Clinical Manifestation of HMPI.

Symptom of HMPI	House officers 52 (20.8%)	Medical officers 78 (31%)	Post-graduates 78 (31.2%)	Consultants 42 (16.8%)
Headache	23 (18%)	45 (36%)	35 (28.6%)	19 (15.5%)
Fever and myalgia's	42 (21%)	71 (35%)	56 (28%)	31 (15.5%)
Lymph-adenopathy	33 (17.9%)	64 (34%)	53 (28.8%)	34 (18.4%)

Only 135(54%) participants were aware of the fact that face and extremities are the favorite site of skin lesions. When questioned about the recommended management of The Human Monkey Pox Infection only 119(47.6%) doctors

were aware of the accurate management guidelines as described in figure 1.

Figure. 1: Knowledge Regarding Management of HMPI



Only 116(46.4%) participants correctly answered about the 2nd and 3rd generation small pox vaccines to be effective against HMPV while 69(27.6%) consider smallpox vaccination ineffective against HMPV

DISCUSSION

In the current study majority of the medical practitioners were working as medical officers and postgraduate residents. Hence most of the participants were young doctors with 170(68%) of the participants in age group ranging from 23 to 33 years. Participants were found to have relatively good knowledge regarding what is HMPI, its routes of transmission and majority of the healthcare workers were aware of the vertical transmission. We got good responses regarding the knowledge of clinical presentation of HMPI. Majority of the participants were aware of the predominant features of the infection.

Smallpox shares common clinical manifestation as both small pox virus and human monkeypox virus belongs to the same family, and is a challenging differential diagnosis. In this study 115(46%) of the healthcare worker were aware of the similarity between HMPI to smallpox. Among these two viral infections only lymphadenopathy, occurring in HMPI, is the differentiating feature and 184(73.6%) of our participants were aware of this difference. But only 113(45.2%) of our respondents were aware of the sequentially evolving rash and sites of lesions and the responses received in the domains of management, recognition of skin lesions, incubation period and vaccination showed low knowledge in all professional groups of doctors. Previous Cross-sectional similar study carried out in Indonesia in march 2020 [11], also showed the same corresponding results related to the knowledge of HMPV in medical practitioners. Similar results were received in a similar study in Kuwait in 2022.[14] However, according to the preliminary report of a recent Cross-sectional study carried out in Saudi Arabia in 2022 [15], the knowledge of medical practitioners regarding HMPI was even lower as compared to the responses we received in current study.

Second and third generation small pox vaccinations are effective against the HMPV. [12] According to a research article published in the Proceedings of the National Academy of Sciences of the United States of America, thirty years after mass smallpox vaccination campaigns ceased there was a dramatic increase in the cases of the HMPI. In the current study less than half of the participants were aware of the effectiveness of small pox vaccines against HMPV.

Incubation period is really important in dealing with an infection and in the current study only half of the participants were aware of the incubation period of HMPV. Isolation of an infected person can control the spread of HMPI and in our study only (38.8%) doctors were aware of the isolation period required for a person infected with HMPV. According to a research article published in the nature scientific journal of England in May 2022 [13], The Human Monkeypox virus (HMPV) spreads from close contact with body fluids of infected person. That means a person with monkeypox is likely to infect his close contacts more than rest of the population. So, health-care workers will use “ring vaccination” that includes vaccination of the close contacts of infected person with monkeypox to cut off any routes of transmission. This is in accordance to the WHO guidelines that recommends vaccination of high-risk persons as a pre-exposure prophylaxis. In the current study 48% of the participants were aware of this current strategy of vaccination against the Human Monkeypox virus. In our current study we found that consultants being more experienced consider them self-confident, in case, if they would have to

manage HMPI.

***Limitations*:** Cross-sectional study itself is a limitation.

CONCLUSION

This study shows the knowledge of medical practitioners working in Punjab, Pakistan is low and needs significant improvement. But considering the fact as being a newly emerging disease in Asian countries the overall response of doctors was a bit reasonable.

Conflict of interest: None

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Recommendation: Due to high alert by WHO there is an utmost need of training sessions for medical practitioners. Infection control authorities, epidemiologists and community healthcare experts should urgently take effective measures and train the healthcare teams so that we would be ready to combat the HMPV.

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Authors' Contribution	
Dr. Romaisa Khalid	Concept, study design, data collection, manuscript writing
Dr. Sumera Ehsan	Study design, data collection, literature search, manuscript writing
Ayesha Khalid	Study design, data analysis, final review, overall supervision
Dr. Khalid Mahmood	Data analysis revised and revised and approved the article
	All authors are equally responsible for the validity of the data and approved the manuscript

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