ORIGINAL ARTICLE

Evaluation of cases of pyrexia of unknown origin

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ABSTRACT:
Background: Fever is one of the most typical complaints. The majority of human fever episodes are transient and don't need for specialized treatment or diagnostic testing. The present study was conducted to evaluate cases of pyrexia of unknown origin. **Materials & Methods:** 57 cases of fever admitted to general medicine ward of either gender was selected. Routine laboratory tests, including a complete hemogram, urine examination and culture, peripheral blood smear for malarial parasite, sugar, urea, and creatinine, blood culture, chest x-ray, abdominal ultrasonography, and dengue IgM, NS-1Ag, were conducted after a comprehensive history and standardized physical examination. **Results:** Out of 57 patients, 37 were males and 20 were females. Etiology of fever was infectious in 30, autoimmune in 4, neoplasm in 5, miscellaneous in 10 and undiagnosed in 8 cases. Outcome was diagnosed in 46, febrile undiagnosed in 4, afebrile undiagnosed in 2, lost to follow up in 4 and 1 died. The difference was significant (P< 0.05). **Conclusion:** Etiology of fever was infectious, autoimmune, neoplasm, and miscellaneous.
Keywords: Fever, febrile, infectious

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INTRODUCTION

Fever is one of the most typical complaints. The majority of human fever episodes are transient and don't need for specialized treatment or diagnostic testing. Some are signs of more serious conditions, most of which are easily detected and treatable. A tiny but significant subset of fevers, nevertheless, are both chronic and challenging to identify.[1] Since the beginning of clinical thermometry, these perplexing fevers have captivated and irritated physicians, leading to a plethora of clinical literature.[2] In 1961, Petersdorf and Beeson classified pyrexia of unknown origin (PUO) as (1) repeated temperatures of >38.3°C (>101°F); (2) fever lasting more than three weeks; and (3) inability to obtain a diagnosis despite oneweek of inpatient investigation. While this classification has stood for more than 30 years.[3]

Although there is some variance in the range of diseases identified in various series of PUO, infections continue to be the leading cause of PUO, accounting for 20–40% of cases.[4] Neoplastic lesions, collagen vascular disorders, and other uncommon illnesses follow.[5] Limited information on PUO from northern India indicates that infections are the most common cause of PUO, while neoplasms and connective tissue disorders are less common.[5] The present study was conducted to evaluate cases of pyrexia of unknown origin.

MATERIALS & METHODS

The study was carried out on 57 cases of fever admitted to general medicine ward of either gender. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. Routine laboratory tests, including a complete hemogram, urine examination and culture, peripheral blood smear for malarial parasite, sugar, urea, and creatinine, blood culture, chest x-ray, abdominal ultrasonography, and dengue IgM, NS-1Ag, were conducted after a comprehensive history and standardized physical examination. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 57		
Gender	Male	Female
Number	37	20

Table I shows that out of 57 patients, 37 were males and 20 were females.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Etiology	Infectious	30	0.02

	Autoimmune	4	
	Neoplasm	5	
	Miscellaneous	10	
	Undiagnosed	8	
Outcome	Diagnosed	46	0.01
	Febrile Undiagnosed	4	
	Afebrile Undiagnosed	2	
	Lost Follow Up	4	
	Died	1	

Table II, graph I shows that etiology of fever was infectious in 30, autoimmune in 4, neoplasm in 5, miscellaneous in 10 and undiagnosed in 8 cases. Outcome was diagnosed in 46, febrile undiagnosed in 4, afebrile undiagnosed in 2, lost to follow up in 4 and 1 died. The difference was significant (P< 0.05).

Graph I Assessment of parameters
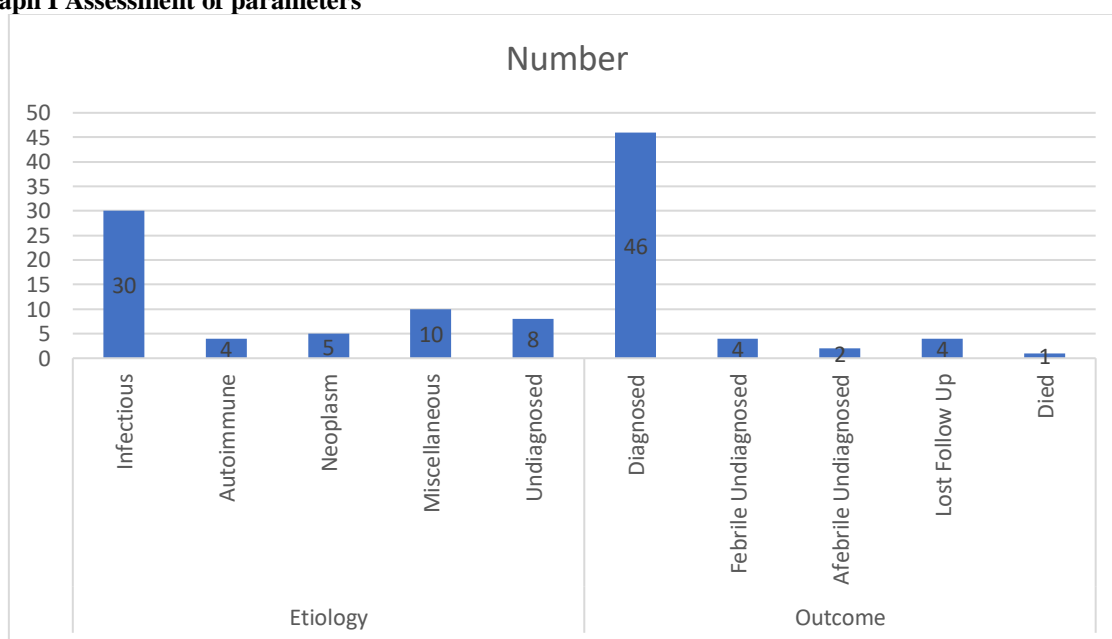
DISCUSSION

One of the most confusing clinical symptoms is fever. It can happen in a variety of circumstances, including infections, cancer, prescription side effects, and environmental toxicity.[6] The cause of a sizable percentage of fevers is still unknown despite extensive search efforts. Infectious diseases continue to be the primary cause of fever in India.[7] Because there are many potential causes and many factors that affect the relative proportion of the different diagnostic categories, it is challenging to compare series of patients with PUO. It has been demonstrated that the distribution of the different diagnostic categories is influenced by geographic considerations, referral patterns, study time, and patient age.In developing nations, infections constitute the primary etiology of PUO, while non-infectious inflammatory diseases (NIID) predominate in industrialized nations.[8] Most patients with PUO exhibit rare symptoms of a common disease rather than common symptoms of a rare disease. Patients with PUOs have varying outcomes based on the concomitant illnesses and underlying diagnosis. Studies on PUO published since 1990 have shown a range of rates of no diagnosis,

varying between 9% and 51%.[9] The outcome of patients with PUO depends upon the underlying diagnosis and the presence of comorbid conditions. Most adults who remain undiagnosed even after an extensive evaluation generally have a good prognosis. The use of empirical therapy should be limited to individuals who additionally present with clinical deterioration, neutropenic fever, giant cell arteritis, or suspected life-threatening underlying causes.[10]The present study was conducted to evaluate cases of pyrexia of unknown origin.

We found that out of 57 patients, 37 were males and 20 were females.Bandyopadhya D et al[11] in their study, a total of 164 patients were included. In the study period, a total of 24 variables, including age, sex, addiction history and various laboratory test results, were measured. In initial clinical examination, symptomatically 28.6% (*n*=47) of patients were found to have lymphoreticular system involvement, and 14.3% (*n*=23) of the patients had symptoms relating to the nervous system. Patients above 50 years of age had significantly lower average temperature than younger ones. The bulk of the provisional diagnosis was hematological malignancy (*n*=34, 20.73%). It

was closely followed by tuberculosis (*n*=38, 23.17%). This provisional diagnosis formed the basis of further tests. We needed serology tests in 26.83% of the cases, histology was sent in 36.11% of the cases, imaging in different forms was done in 76.83% of the cases and microbiological support was needed in 63.41% of the cases. Average Hb of the patients at admission was 8.26 g%, average total count was 16,610 and average ESR was 59.71 mm at the end of the first hour. The average length of stay was 14.47 days (±7.06 days). Average time needed for reaching a diagnosis was 5.64 days (±3.2 days). After diagnosis the patients stayed for therapy or were transferred to other specialties.

We found that etiology of fever was infectious in 30, autoimmune in 4, neoplasm in 5, miscellaneous in 10 and undiagnosed in 8 cases. Outcome was diagnosed in 46, febrile undiagnosed in 4, afebrile undiagnosed in 2, lost to follow up in 4 and 1 died. Kejariwal D[12]elucidated the causes of in PUO Eastern India and to define the changing patterns of PUO, if any.One hundred patients meeting the classic criteria of pyrexia of unknown origin were selected. The final diagnosis established at discharge or during follow up.Infections, especially tuberculosis was the most dominant cause (53%), followed by neoplasms (17%), and collagen vascular disorders (11%), Miscellaneous causes were responsible in 5% cases and in 14% the cause of fever remained undiagnosed.It was concluded that infections remain the most important cause of PUO in India, confirming the trends found earlier in other studies. The incidence of neoplasms was much higher compared to other studies from India.

Knockaert DC[13]described the spectrum of diseases that may give rise to fever of unknown origin in elderly patients and to delineate the diagnostic approach in these patients.Forty-seven consecutive patients, older than 65 years, meeting the classic criteria of fever of unknown origin.Infections, tumors and multisystem diseases (encompassing rheumatic diseases, connective tissue disorders, vasculitis including temporal arteritis, polymyalgia rheumatica, and sarcoidosis) were found in 12 (25%), six (12%) and 15 patients (31%), respectively. Drug-related fever was the cause in three patients (6%), miscellaneous conditions were found in five patients (10%), and six patients (12%) remained undiagnosed. Microbiologic investigations were diagnostic in eight cases (16%), serologic tests yielded one diagnosis, immunologic investigations had a diagnostic value in four cases, standard X-rays yielded a diagnostic

contribution in 10 cases, ultrasonography and computed tomography were diagnostic in 11 cases, Gallium scintigraphy had a diagnostic contribution in 17 cases, and biopsies yielded the final diagnosis in 18 cases.

The shortcoming of the study is small sample size.

CONCLUSION
Authors found that etiology of fever was infectious, autoimmune, neoplasm, and miscellaneous.

REFERENCES
1. Hirschmann JV. Fever of unknown origin in adults. Clinical Infectious Diseases 1997;24(3):291-302.
2. Gaeta GB, Fusco FM, Nardiello S. Nucl et.al. Fever of unknown origin. Med Commun. 2006 Mar;27(3):205-11.
3. Zhiyong Z, et al. Fever of unknown origin: a report from China of 208 cases. Int J Clin Pract. 2003 Sep;57(7):592-6.
4. Jung A, Singh MM, Jajoo U. Unexplained fever-analysis of 233 cases in a referral hospital. Indian J Med Sci 1999; 53:535-544.
5. de Kleijn EM, van Lier HJ, van der Meer JW. et. al. Fever of unknown origin (FUO). II. Lippincott Williams & Wilkins Medicine (Baltimore). 1997 Nov;76(6):401-14.
6. de Kleijn EM, Vandenbroucke JP, van der Meer JW,et.al.Fever of unknown origin (FUO). I A. The Netherlands.Medicine (Baltimore). 1997 Nov;76(6):392-400.
7. Knockaert DC,et.al.Clinical value of gallium-67 scintigraphy in evaluation of fever of unknown origin. Clin Infect Dis. 1994, Apr;18(4):601-5.
8. Dipanjan Bandyopadhyay, Ramtanu Bandyopadhyay, Rudrajit Paul, and Deeptarka Roy,et.al. J Etiological Study of Fever of Unknown Origin. Glob Infect Dis. 2011 Oct-Dec; 3(4): 329–333.
9. Colpan A, Onguru P, Erbay A, Akinci E, Cevik MA, Eren SS, et al. Fever of unknown origin: Analysis of 71 consecutive cases. Am 2007;334:92-6.
10. Chin C, Chen YS, Lee SS, Wann SR, Lin HH, Lin WR, et al. Fever of unknown origin in Taiwan. Infection 2006;34:75-80.
11. Bandyopadhya D, Bandyopadhyay R, Paul R, et al. Etiological study of fever of unknown origin in patients admitted to medicine ward of a teaching hospital of eastern India. Journal of Global Infectious Disease 2011;3(4):329-333.
12. Kejariwal D, Sarkar N, Chakraborti S, et al. Pyrexia of unknown origin: a prospective study of 100 cases. J Postgrad Med 2001;47(2):104-107.
13. Knockaert DC, Vanneste LJ, Bobbaers HJ. Fever of unknown origin in elderly patients J Am Geriatr Soc 1993;41:1187-92.