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To study the profile of fever of unknown origin(FUO) in the elderly patients (>60 years) admitted to a tertiary care hospital in South India

KEYWORDS: Elderly, fever of unknown origin, tuberculosis

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ABSTRACT Fever of unknown origin (FUO) is a common presentation for variety of disorders in the geriatric age group. Most of these patients can be accurately diagnosed with a systematic approach and assessment. Causes of FUO vary with the demography and the economic status of the country. This is retrospective study to analyse the profile of all the geriatric patients with FUO (fever of more than 3 weeks), who were admitted to a tertiary care hospital in south India. In our study Infectious diseases (54%) was the most common cause of FUO with tuberculosis (43%) being the commonest infection followed by urinary tract infection (UTI). Malignancies constituted the second most common cause of FUO with 20.9% of the cases. Connective tissue disorders were responsible in 8.95% of patients. Diagnosis could not be established in 8.95% of the patients and four patients did not have any documented fever after admission to the ward. CRP was raised in 91% of the patients and ESR was raised in 73% of the patients with FUO. In our study the diagnosis could be established in more than 90% of the geriatric patients presenting with FUO.

Introduction

Fever of unknown origin (FUO) remains an important diagnostic dilemma in the older adults. Causes of FUO vary according to the age, geographical area and economic status of the country. Geriatric patients may have an atypical presentation due to reduced body reserves and decreased immunity and fever response may be impaired thus delaying the diagnosis of the underlying infection. But, still whenever FUO is present specific cause in the form of infections, malignancies, connective tissue and haematological disorders can be identified in majority of the cases(1). In western countries, the infectious causes of FUO are gradually on decline with connective tissue disorders and malignancies being the commonest cause of FUO. In the developing countries like India infectious causes continues to be the major cause of FUO in the geriatric population. In the younger patients the cause of FUO cannot be established in almost one third of the patients whereas in geriatric patients the cause could be established in almost 90% of the patients with FUO. The data of FUO in the geriatric population is scarce from India. The aim of this study is to assess the profile of the geriatric patients (> 60 years) admitted with FUO to a tertiary care centre in south India.

Aim

To study the profile of geriatric patients (> 60 years) admitted with history FUO to a tertiary care hospital in South India.

Material and Methods

Inclusion Criteria
1. Age more than 60 years
2. Fever of more than 3 weeks

Exclusion Criteria
1. Patients with health care associated infection
2. Patients with previous immunosuppressive diseases like HIV infection, organ transplant recipients, on cancer chemotherapy

It was a retrospective study done in all the geriatric patients more than 60 years of age admitted to a geriatric ward with history fever of unknown origin between October 2009 to April 2013. All the electronic discharge summaries and the charts were reviewed. The history, clinical examination, investigations, diagnosis and treatment received were reviewed from the electronic discharge summaries. The data was collated and analyzed.

Results

Total 68 patients were admitted with fever of more than three weeks between October 2009 and April 2013. Average age was 66.1 ± 6.1 years with age ranging from 60 years to 88 years. Males constituted 74.62% (51/68) of patients. Average duration of stay in hospital was 12.92 days and average duration of fever was 2.51 months with four patients giving history of more than 6 months. Infectious causes were the most common cause of FUO in elderly comprising of 52.2% (35/68) of all cases followed by malignancies (20.89%) and connective tissue disorders (8.82%). No diagnosis could be established in 10.44% (7/68) of the patients and 7.35% (5/68) of patients did not have any documented fever in the ward.

Among the infectious causes, tuberculosis was the most common cause with 46% (16/35) of patients with either confirmed or probable tuberculosis. Extra pulmonary/disseminated tuberculosis was the most common tuberculosis with of 44% cases (7/16). Six patients had probable tuberculosis and were started on empirical ATT.

Table 1:- Baseline Characteristics

Average age	**66.02 ± 5.9 years**
Males	**52/68 (76.4%)**
Average duration of stay in Hospital	**12.9 days**
Average duration of fever	**2.51 months**
Anemia (Hb <10 G%)	**29/68 (42.64%)**
Raised CRP	**31/34 (91.97)**
Raised ESR (>20)	**49/68 (73.13%)**
Deranged renal functions (Creat >1.4)	**25/67 (37.31%)**
Hypoalbuminemia (Alb < 3.5)	**35/62 (56.45%)**
Positive urine Culture	**13/68 (19.11%)**

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Positive Blood Culture	**6/68 (8.82%)**
Significant weight loss	**29/68 (42.68%)**

Table 2 :- Causes of FUO in the Geriatric patients

Infectious causes		**35/68 (51.47%)**
	Tuberculosis	**16/35 (45.71%)**
	Disseminated Tuberculosis	**4/16 (18.75%)**
	Tubercular meningitis	**2/16 (12.5%)**
	Pulmonary TB	**3/16 (18.75%)**
	Probable TB on Emperical ATT	**6/16 (37.5%)**
	Tubercular Pericardial effusion	**1/16 (6.25%)**
	Abdominal Tuberculosis	**1/16 (6.25%)**
	Urinary Tract Infections	**10/35 (28.57%)**
	Pneumonia	**2/35 (5.71%)**
	Sub acute Bacterial endo-carditis	**2/35 (2.61%)**
	Multiple Liver Abscesses	**1/35 (2.61%)**
	Kala Azar	**1/35 (2.61%)**
	Atypical Mycobateria	**1/35 (2.61%)**
Malignant Disorders		**14/68 (20.89%)**
	Lymphomas	**7/14 (50%)**
	Disseminated malignancy	**2/14 (14.28%)**
	Carcinoma Lung	**2/14 (14.28%)**
	MDS	**1/14 (7.14%)**
	Gastric Malignancy	**1/14 (7.14%)**
	Hepatocellular Carcinoma	**1/14 (7.14%)**
Connective tissue disorders		**6/68 (8.82%)**
	SLE	**1/6 (16.6%)**
	Microscopic polyangitis	**1/6 (16.6%)**
	Sarcoidosis	**1/6 (16.6%)**
	Vasculitis	**1/6 (16.6%)**
	Adult Onset Stills Disease	**1/6 (16.6%)**
	Temporal arteritis	**1/6 (16.6%)**
Misc Causes		**2/68 (2.94%)**
	Crohn's Disease	**1/2**
	Hyperthyroidism	**1/2**
No Diagnosis	**No diagnosis**	**6/68 (8.82%)**
No documented fever in the ward (factitious fever)	**No documented fever in the ward**	**5/68 (7.35%)**

Five of these patients with probable tuberculosis showed a favourable response to ATT. Urinary tract infection (UTI) was the next common cause of infection comprising of 25.71% (9/35) of all infections. Details are shown in table 2

Among malignancies, lymphoma was the most common cause of FUO with 50% (7/14) cases all malignancies. Carcinoma lung and disseminated malignancy was present in 14% (2/14) cases each. One patient each had gastric malignancy, hepatocellular carcinoma and myelodysplastic syndrome. Connective tissue disorder was present 7.46% (6/68) of patients with one patient each of SLE, microscopic polyangitis, vasculitis, adult onset stills disease, temporal arteritis and sarcoidosis

CRP was raised in around 91% of the patients with ESR of more than 20 mm fall at one hour in 73%. Serum creatinine of more than 1.4 mg/dl was present in 37.31% of patients. Hypo albuminemia (albumin <3.5 g/dl) was present in 56.45% of patients. Forty two percent of patients had Hb < 10 g % and significant weight loss.

Discussion

FUO presents as a diagnostic dilemma in number of geriatric patients with a wide range of differential diagnosis(2). Systematic and comprehensive assessment is required to establishment early diagnosis in such patients. In developing countries infections remain the most important cause of FUO in elderly unlike the western countries where connective tissue disorders and malignancies predominate(3). In our study infections constituted 52% of all cases with tuberculosis being the commonest cause .In a study from Honkong done in the residents of old age homes it was noted that the prevalence of active tuberculosis continues to be high in the geriatric population(4). In Similar findings were also noted in a study done in Chinese study on geriatric patients where infections were the commonest cause in of FUO with tubercular infection being the commonest cause(5, 6). In the same study it was also noted that the cause of FUO could not be established in 26.5% of the elderly patients where as in our study the diagnosis could be established in more than 90% of the geriatric patients with FUO(6). This was also seen in a study done by Turkoluv, where the diagnosis could be established in 90% of the elderly patients with FUO(7). Study done by Tal showed that treatable cause can often be found in majority of geriatric patients with FUO(2). Our study also showed that ESR was raised in 91% of the geriatric patients with FUO. Similar findings were noted in a study by Onal IK, where very high ESR was more commonly seen in the elderly patients as compared to young patients(8). However in our study we did not compare the ESR with young non geriatric patients with FUO. In our study UTI was found to be second most common infection of FUO, accounting for 28.57% of all cases with infections. Other studies had shown much lower incidence of UTI as a cause of UTI. This may be due to inadequate treatment prior to presenting at tertiary centre, predisposing factors like long standing uncontrolled diabetes, structural abnormalities of the genitourinary tract and poor hygienic conditions.

Malignancies were the second most common cause of FUO in our study accounting for almost 20.89% of all cases. This was in accordance with other studies where malignancies has emerged as a common cause of FUO in elderly (3). Lymphoma was the commonest cause of the malignancy responsible for 50% of all cases of malignancies. In the Chinese study 15% of cases with FUO were due to neoplastic disorders and lymphoma constituted almost 46.77% of cases as seen in our study(6).

Connective tissue disorders were the third cause of FUO found in our study with 8.9% of all cases. In the developed world connective tissue disorders especially polymyalgia rheumatica and temporal arteritis are the most common cause of FUO in the elderly (3). Temporal arteritis may be responsible for upto 60% of cases in this group but in our study only one patient with FUO was diagnosed to have temporal arteritis. Even in the Chinese study there was no case of temporal arteritis emphasing that probably temporal arteritis in not very common in Asian countries. In 10% of cases no definite diagnosis could be established which is consistent with other studies. This may be due to drug fever or a factitious fever. As some of these patients presented to tertiary care centre after being evaluated extensively outside and have received multiple antibiotics and other drugs which may hacve caused persistent fever.

Conclusion

In developing countries infections remain the commonest cause of FUO in the elderly with tuberculosis being the commonest cause followed by urinary tract infections. Malignancies are the second most common cause of fever followed by connective tissue disorders. Diagnosis could be established in around 90% of the patient with documented FUO. However the available literature of FUO in the geriatric population, especially in the developing countries is scarce and more multi-centric studies are required in these field.

References

1. Norman DC. Fever in the elderly. Clinical infectious diseases : an official publication of

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the Infectious Diseases Society of America. 2000;31(1):148-51.
2. Tal S, Guller V, Gurevich A, Levi S. Fever of unknown origin in the elderly. Journal of Internal Medicine. 2002;252(4):295-304.
3. Knockaert DC, Vanneste LJ, Bobbaers HJ. Fever of unknown origin in elderly patients. Journal of the American Geriatrics Society. 1993;41(11):1187-92.
4. Chan-Yeung M, Chan FH, Cheung AH, Dai DL, Chu LW, Lam WK, et al. Prevalence of tuberculous infection and active tuberculosis in old age homes in Hong Kong. Journal of the American Geriatrics Society. 2006;54(9):1334-40.
5. Chen Y, Zheng M, Hu X, Li Y, Zeng Y, Gu D, et al. Fever of unknown origin in elderly people: a retrospective study of 87 patients in China. Journal of the American Geriatrics Society. 2008;56(1):182-4.
6. Zheng M, Lin H, Luo S, Xu L, Zeng Y, Chen Y. Fever of unknown origin in the elderly: nine years experience in China. Tropical doctor. 2008;38(4):221-2.
7. Turkulov V, Brkic S, Sevic S, Maric D, Tomic S. Fever of unknown origin in elderly patients. Srpski arhiv za celokupno lekarstvo. 2011;139(1-2):64-8.
8. Onal IK, Cankurtaran M, Cakar M, Halil M, Ulger Z, Dogu BB, et al. Fever of unknown origin: what is remarkable in the elderly in a developing country? The Journal of infection. 2006;52(6):399-404.