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RESEARCH ARTICLE

CLINICAL AND BIOCHEMICAL PRESENTATION OF SCRUBTYPHUS IN CHITTORGARH RURAL AND URBAN AREA.

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Abstract

Scrub Thypus is a disease caused by a bacteria called Orentia Tsutsugamashi.It spreads through bites of infected chiggers and presented with acute febrile illness ; Headache,Body aches ,pain abdomen and sometimes with rashes. It is endemic to east and south east Asia and northern Australia and Indian Ocean.

Nowadays Its cases are increasing in this region due to good diagnostic approach and high index of clinical suspicion and treated if detected early, serologically ,because almost no body have pathognomic eschar.

Objective:- To study the clinical presentation and its biochemical changes in District hospital chittorgarh during the period of May 2019 to September 2019.

Methods:- This is a urban rural based study of 100 patients with fever and pain abdomen, diagnosed as scrub typhus at district hospital chittorgarh.

Results:- 100 patients between the age of 15-70 yrs presented with fever ,pain abdomen,nausea , vomiting and headache.In investigations ,lab findings Showed low platelets, low WBC. ,increased SGOT, SGPT ,.Few of them are with complication like acute renal failure,minimal ascities,multiple organ dysfunction and meningial signs .Diagnosis was confirmed by immunochromatography that is card test for IgM antibodies and ELISA. Out of 100 patients 80% patients were recovered with in 3to 4 days and only 4% had complication were reffered to higher center .,no death occurred.

Introduction:-

Scrub typhus is a vector borne disease endemic in South east asia,[india,Pakistan East Asia,[korea,china,Taiwan]Pacific Islands,and Northern Australia.1

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The infection is transmitted to humans by bite of infected larvae of trombiculid mites.The organism infects the vascular endothelium with vascular injury to various organs like liver skin,kidneys,meninges The clinical presentation are fever, andominal pain, headache myalgia,vomiting can be indistingushible from other disease like dengue ,malaria,enteric fever,which are common cause of fever in this region.

Paitents are increasing here, are diagnosed with high clinical suspicion,and serological testing. They responded well with doxycycline and azithromycin.

Material And Methods:-

This was a Government hospital based study of patient .The study group included patients of age between 15 to 70 yrs old admitted to medical ward of chittorgarh govt hospital ,in Rajasthan,period between [May 2019 to september 2019].All patients admitted with fever ,pain abdomen,headache .vomiting more than 4days duration ,and evaluated .The investigation were done for dengue malaria,enteric fever,by serology,peripheral blood smear, complete blood counts,liver function test,renal function test,,Serum Electrolytes,Chest Xray ,Urine routine ,U SG abdomen,C T in few cases.After the rulling out other febrile disease,the high clinical suspicion and rapid immunochromatographic assay for detection of Igm/IgGor IgA[2] antibody in serum against Orientia tustsugamashi and the Igm Elisa done. The Patient excluded who were diagnosed as Dengue ,Enteric fever,chikanguniya and already diagnosed chronic liver and renal failure.

Results:-

100 pateints in the range of 15 to 70 yrs were test .The majority of cases were from rural area,higher in female farmers those working in grass lands.

Mean age of cases was 35 yrs +_15yrs.Mean age in the male was 36yrs and in females was 34.6yrs.

Maximum No of patents reported in august and mid september2019.It indicates that no of cases are more in monsoon .[table no1]

Out of 100 patients females were 65and males were 35 .[tab no11]

The 42 females were from rural area and 20 out of 35 males were from rural area. [table no 111]

These patients was connected to dairy farming and agriculture.[Table no iv]

Most common presentation was fever in all cases,lasted for 4to 7days,second most common symptom was headache[99%],than pain abdomen [80%]Myalgia 75%,nausea and vomiting werein 70%.

The hepatomegaly were noted in 40%and spleenomegaly were in 20%,lymph nodes were in 5%.

Presenting symptoms and findings on clinical examination are shown in Table V and V1 respectively.The Blood counts results were ;; leucopenia in 40%,lecocytosis,20%,cases.,Throbocytopenia found in 60%,Elevated liver enzymes in 80% found.

6% cases were presented with acute renal failure.

Ascities were in 8% cases.pleural effusion were in2%

ARDSwere found in only 2%,[2cases] ,which were reffered to higher center giving oxygen ,iv fluids and IC Ucare 10% Patients were presented with MODS,treated in I C U .3% cases wereon ventilator support ,and all were recovered within 7daysatfer intensive treatment.

2 Patients were having altered sensorium ,having hyponatermia and hypokalemia,treated with I V fluids and recovered.

C T scan brain was done in 2 cases and scan was normal in both patient .

Duration of stay was around 3 days in uncomplicated cases and up to 7 days in complicated cases.

The most of patients with mild symptoms like fever ,headache,pain abdomen and mild derangement in laboratory parameters and with out complication was treated with Doxycycline.

The patients with electrolytes imbalance and platelets less than 90000/cumm,acute renal failure, alterted sensorium ,minimal ascities,pleural effusion, were admitted to I CU and they were treated with IV fluids,O2 , and I V azithromycin 500mg/dayfor 3 to 5 days ,and doxycycline 100mg twice a day.3% cases were on ventilator support. All were treated for 7days and recovered.

Patients with ARDS, and poor response to treatment were reffered to higher center hence no moratality recorded.

Table 1:-Monthly Distribution of Cases.[2019]

Month [Jan to sept]	
january	0
February	0
March	0
April	0
May	5
June	14
July	24
August	30
September	28

Table 2:-Distribution of patients according to age and gender.

Age in years	Male [35]	Female [65]	Total [n=100]
<20	2	4	6
20-40	20	40	60
40-60	10	16	26
>70	3	5	8

Table3:-Rural or Urban Distribution of cases.

Category	Male[n=35]	Female[n=65]
Rural	20	42
Urban	15	23

Table4:-Distribution of Cases based on occupation

Occupation	Male [n=35]	Female[n=65]
Agriculture/dairy	15	41
other	20	24

Table 5:- Presenting symptoms in scrub typhus

Presenting Symptom	No Of patents [n=100]
Fever	All [100%]
Abdominal Pain	80[80%]
Headache	99 [99%]
Myalgia	75[75%]
Dyspnoea	3[3%]
Cough	3 [3%]
Altered Sensorium	2 [2%]

Shock	2 [2%]
Nausea Vomiting	70[70%]

Table 6:- Clinical examination findings In scrub Typhus.

Clinical finding	
Hepatomegaly	40[40%]
Splenomegaly	20[20%]
Anemia	30[30%]
Meningeal sign	2[2%]
Lymphadenopathy	5 [5%]

Table7:- Laboratory Findings in Scrub Typhus

Laboratory Findings	
Anemia {Hb<10gm%]	30[30%]
Leucopenia [<4,000cells/cumm]	50[50%]
Leucocytosis [>10,000cells/cumm]	40[40%]
Thrombocytopenia[<1,500000/cumm	60[60%]
Elevated Liver Enzymes	80 [80%]
Hyponatraemia [<135meq/L]	2[2%]
Pleural Effusion	2[2%]
Ascities	8 [8%]

Table8:-Complications of scrub Typhus

Complications	Number of patients
ARDS	2%
Acute renal failure	6%
Electrolyte Imbalance	2%
Polyserosities	10%
MODS	10%
Encephalopathy	2%

Table 9:-Outcome of Disease of patients

Out come	No patents/days
Mechanical Ventillator Support required[non invasive]	3[3%]
Average Duration of non invasive ventillation	3days
Need for dialysis	
Average Duration of ICU Stay	4 days
Average Duration of Hospital stay	5days
Mortality Reffered to higher centre	Nil 3[3%]

Discussion:-

This is a tropical disease .The South east Asia is one of favourable region for the tropical diseases,as concerned with climate.As scrub typhus is caused by bactetia called Orientia Tsutsugamashi and spread by insectbite,it is influence by the season greatly especially in rainy seasons .The scrub typhus is less common in temprate climate,as cold climate control the insect popultion .The rickettesial infections are noted in various parts of countrywith high humidity and poor sanitation,.occurs sporadic outbreaks of scrub typhus mainly in eastern and southern states of india.,mainly in monsoon and post monsoon months . [3,4,5]

In the chittorgarh region other fever are also common like dengue ,enteric fever, malaria influenza.

Our patents falls in age group of 15to 70yrs ,like study of sinha 6et al and Madi et al[7.]Here more females are affected more than males in chittorgarh region.
Most of patents diagnosed within 2-3 days of onset of fever.Eshar which is the pathognomic of scrub typhus did not found in any patient ,as it is difficult to detect in dark skin patient[.8],as it was reported by Razak et al that it is less frequent in south East Asia [9]

We found lymphadenopathy in 5 % patents,Different studies shows that there is wide range of lymphadenopathy.10 10 patents have involvement of more than two organ system that is MODS,is complication of scrub typhus.We found mainly hepatic dysfunction followed by renal failure similar to Narvencar et al11

Only 2 paitents required ventillatar support non invasive mechanical ventilation and recovered well.

Study from southern india showed involvement of 76.9%respiratory system and requirement of ventillatory support 12.

The mortality in paients with scrub typhus has not seen in our study but in india it has wide variation and depends on early or late presentation,delayed diagnosis,and comlpication such as ARDS,acute renal failure,and liver dysfunction.The mortality is nil as compared to studies from india by Mahajan et al[mortality14.25]13
Kumar et al[morethan 17% [14],.The case fatality rate in scrubtyphus is 7 to 30%,in korea it is 10% [15]
in Taiwan 30%[[16].

In our case because of early diagnosis,and treatment ,good response to treatment,and low percentage of ARDS,and those which were not responding very quickly reffered to ter tiary center may attribute the zero fatality.

All the patients who were positive by serological test by Elisa ,all responded very well with Doxycycline and Azithromycin.

The rapid card Test was very useful tool in our study as without delay, we started treatment .This immunochrmatographic test is has sentsitivity of 99%and sepicificity of 96%,it seems that this is very use ful tool for detection of scrub typhus at the district level.

Lack of eshar in patient leads to difficulty in diagnosis,but due to high index ofclinical suspicion and Prompt laboratory evaluation ,empirical antibiotic therapy leads to fast recovery.

Conclusion:-

In acute febrile patients, high clinical suspicion and rapid immunochromatograhic test ,IgM ,ELISA, and other labroratory evaluation is essential for prompt diagnosis of scrub typhus at the district level as in chittorgarh region in india; as limited resources available at this level and also dramatic response after giving doxycycline andor Azithromycin.

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