Original Article

Kala-azar in Qadisiah : A clinicoepidemiological descriptive study

Mohammed mojar Al-Shamsi(FICMSP) *
Rahman Kareem mohsin(CABP) **
Assad Habeeb Abdullah ***

Summary:

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Subject and Method :
study involved sixty five children with kala-azar who were admitted to the maternity and children teaching hospital in Diwaniah during a one year period , 1999. The clinical and epidemiological criteria of the disease were discussed. The majority of these patients were under the age of 5 years (97%) and were from rural areas (86%)
Result :
The symptoms and signs of the disease were fever (100%), splenomegaly (100%), anaemia (100%), hepatomegaly (92%), anorexia (62%), bleeding tendency (46%) and jaundice (31%). Our patients had high incidence of bleeding tendency , jaundice , edema and relatively high mortality in comparison with patients elsewhere

Introduction:

(^Visceral leishmaniasis (kala-azar) is a tropical disease caused by the protozoan, Leishmania donovani , and is characterized by prolonged fever , anaemia , hepatosplenomegaly , leucopenia and hyperglobinaemia (1). It occur in all continents except Australasia (2). Kala-azar was reported for the first time in Iraq in 1916 (3) , and known to be endemic in 1954 (4,5)^jTwo main species of the sandfly vectors are suspected in Iraq, Phlebotomas papatasi (6-10 and P. alexandri (6).

Previous Iraqi reports indicate that visceral leishmaniasis is a disease of children under the age of five years, with an equal sex incidence , showing seasonal variation and its incidence is increasing inspite of the implementation of the control measures (6,11,12,13).

We report here our clinical experience of 65 cases of visceral leishmaniasis in infants and children who were admitted to the maternity and children teaching hospital in Diwaniah over a one-year period (1999).

** Assist. Prof, of pediatrics , college of medicine , Al-Qadisiah university*
*** Lecturer in pediatrics , college of medicine, Al-Qadisiah university*
**** Pediatric specialist, maternity and children teacing hospital Diwaniah*

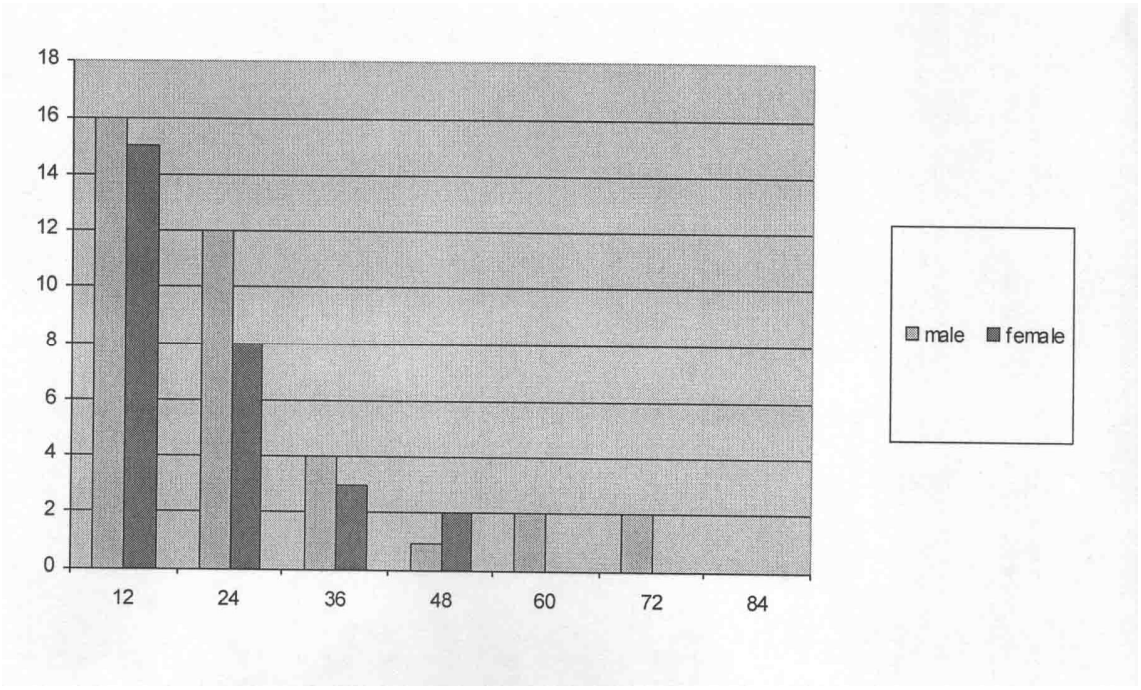
Patients and methods

Infants and children with a diagnosis of kala-azar who were admitted to the maternity and children teaching hospital in Diwanisah during the period from January 1st to December 31st 1999 were evaluated. For each patient the following data were recorded : age , sex , residence , month of admission , duration of illness , presenting complaints and physical signs on admission. Laboratory investigations which were done for the patients included: complete blood count, total serum protein , serum albumin, liver function tests , serology for Brucella and for enteric fever, urinalysis, chest x-ray and electrocardiogram . Some of these tests were not done for all patients. Bone marrow examination and when this was negative a sample for immunofluorescent antibody test (IFAT) was sent to the central public health lab in Baghdad as this test (IFAT) is not available in this city, in some patients bone marrow aspirate was not done as they were sent for IFAT before hospitalization.

The duration of fever defervescence from the start of treatment together with the disease complications were noted. All the patients received sodium stibogluconate 10-20 mg/ kg/day intravenously or intramuscularly depending on the presence of jaundice and the preference of the treating physician. Blood transfusion and fresh frozen plasma were given for severe anaemia and for bleeding tendency, antibiotics were prescribed if indicated.

Results

During the period from January 1st to December 31st 1999, sixty five children with a diagnosis of kala-azar were admitted to the maternity and children teaching hospital in Diwaniah , 89% of the patients were under the age of 3 years and 97% were under the age of 5 years , there were 33 males and 32 females , the age and sex distribution is shown in figure 1.



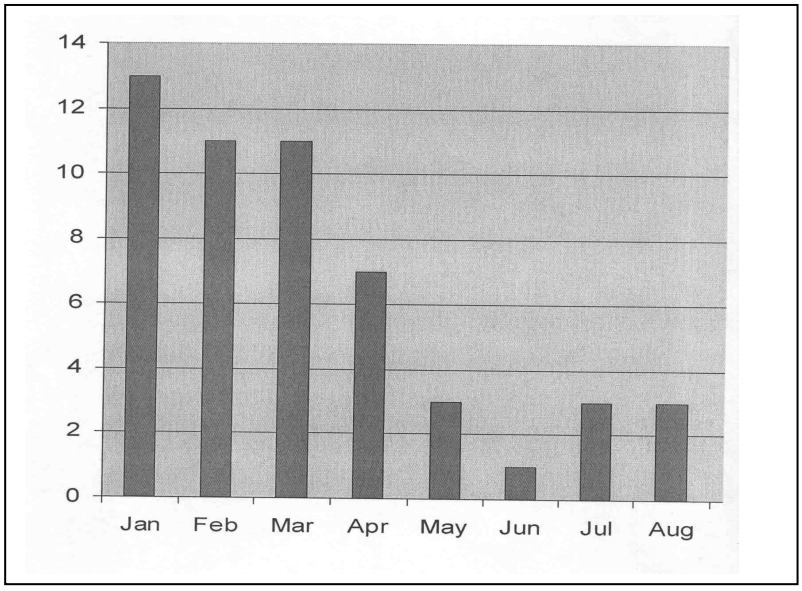
Twenty one patients(32%) were from Albdir district and ten from Afak Qadaa(15%), the distribution of patients according to geographical places is shown in table 1.

Table 1
The geographical distribution of 65 cases of Kala-azar

Place	No.of cases	percentage
Albdir district	21	32.2
Afak Qadaa	10	15.4
Sumer district	7	10.8
Hamzah Qadaa	6	9.2
Diwaniah	6	9.2
Al-Sidir district	5	7.7
Dagharah district	4	6.2
Saniah district	4	6.2
Al-Shannaflah district	2	3
Total	65	100

Fifty five patients(85%) were fro rural areas and 10 patients (15%) from urban areas. Most cases presented during winter and spring , the seasonal distribution of the cases is shown in figure 2.

Figure 2



The duration of fever ranges from 2 weeks to 3 months , the characteristic intermittent fever was very common (100%)(Table 2). Pallor was present in 60 patients (92%) , abdominal distension in 50%, respiratory symptoms in 40 patients (62%), gastrointestinal symptoms in 54 % and bleeding tendency in 30 patients (46%).

Table 2

Symptoms	No. of cases	%
Fever	65	100
Pallor	60	92.3
Abdominal distension	33	50
Cough	40	61.5
Diarrhea& vomiting	35	53.8
Bleeding tendency	30	46.1
Anorexia	40	62
Irritability	21	32.2
Shortness of breath	20	30.7

Clinical symptoms on admission of 65 cases with Kala-azar

Anaemia and splenomegaly were present in all cases on admission , the spleen was palpable 3-15 cm below the costal

margin , hepatomegaly was common (92%) and the liver edge was between 3-10 cm below the costal margin, Table 3.

Table 3

Signs	No. of cases	Percent
Anaemia	65	100
Splenomegaly	65	100
Hepatomegaly	60	92.3
Weight loss	30	46.1
Oedema	25	38.4
Jaundice	20	30.7
Pneumonia	20	30.7
Ascites	6	9.2

Clinical signs on admission of 65 cases with Kala-azar

Concerning the laboratory investigations; anaemia was observed in all the patients and 55 patients (85%) with haemoglobin level below 7 gm/dl received blood transfusion. Leucopenia (WBC below 4000/mm3) was found in 26 patients (40%) and leucocytosis in 15 (23%). Thrombocytopenia was observed in 38 patients (59%). The majority of tested patients had a total serum protein between 5 and 10 gm/dl , the albumin level varied between 1.5 and 3.5 gm/dl , 23 of the tested patients (35%) with levels below 2 gm/dl. Elevated total serum bilirubin was observed in 22 patients (34%), eight of them developed hyperbilirubinemia during hospitalization. Elevated liver enzymes (more than 100 Ill/ml) occurred in 25 patients (39%).

Bone marrow aspirate was done in 35 patients and in 26 of them leishmania donovani(LD bodies) were demonstrated. The diagnostic methods used in this study are shown in table 4.

Table 4

Method of diagnosids	No. of cases
IF AT only (positive)	30
Bone marrow only (positive)	24
IF AT positive & Bone marrow negative	9
IF AT negative & Bone marrow negative	2

1 The sensitivity rate of IF AT = 95.1 %

2 The sensitivity of Bone marrow = 74.3 %

The fever subsided in 4 - 10 days (mean 6 days) after commencement of sodium stibogluconate. Thirteen patients (20%) died during hospitalization , the causes of their death are summarized in table 5.

Table 5

The cause of death	number	Percent
Septicaemia	5	38.5
Bleeding tendency	4	30.7
Hepatic failure	2	15.4
Pneumonia	2	15.4

Causes of death of 13 patients with Kala-azar

Eight of the patients who died were malnourished (their weight were below the 3rd centile) and the major risk factors for mortality were malnutrition , delayed presentation , jaundice and bleeding tendency. Four patients developed relapse during the study period (6%) and required a second course of sodium stibogluconate.

We faced the following problems during this study:
1. Those patients required prolonged hospitalization and most families find this difficult particularly those from rural areas whom constitute 85% of the patients.
2. The drug sodium stibogluconate should be kept at 4 - 8 c° and away from light as it is subjected to polymerization and deterioration when exposed to heat or light (14), and as the power supply is limited due to the economic embargo on this country, early discharge of patients from the hospital after improvement and supplying them with the drug from the hospital seems not scientific.
3. Follow up of the patients was not easy as most of them were from far rural areas.
For the abovementioned reasons and although 52 patients improved after hospitalization , the true incidence of relapse can not be determined.

Discussion

The peak age incidence in the present study is below 5 years which compares well with figures reported previously (*11,15,16,17)* , although our patients were younger than their patients. This finding is different , however , from what is found in India , where adults can acquire the infection (18). The sex distribution of our patients is nearly the same between boys and girls , a result that is consistent with other studies (*11,12,17).* The seasonal variation in our study (more cases presented in winter and spring) corresponds to the sandfly season in our country that lasts from April to November with maximum peak in September (12), this observation was also made by Murad et al in Baghdad (11) and a study in India (19), but in contrast to the situation in Saudi Arabia where seasonal pattern was not present(14).
The geographical distribution of the Kala-azar cases in this study was mainly from Albdir district , Afak Qadaa, Sumer district followed by Hamzah Qadaa , this is probably due to inadequate implementation of the control measures that had been started all over the country in 1985 (6) in addition to the wide spread availability of the canine animals (jackals and dogs) in these areas. Comparing the major clinical manifestations in our patients with those in other series (table 6), revealed that our patients had high frequency of bleeding tendency , jaundice and oedema. This difference between our patients and those of the other studies could be partly due to malnutrition resulting from the economic embargo on this country , infections and delayed presentation. Further studies is needed to elaborate the high percentage of jaundice in our patients as jaundice is unusual in Kala-azar (20).

Table 6

Study	**Present study**		**Murad et al study (11)**		**Patil et al study (16)**	
Place of study	Qadisiah		Baghdad		Asir	
No. of patients	65		100		45	
Year of study	1999		1989 - 1990		1982 - 1988	
Manifestation	No.	%	No.	%	No.	%
Fever	65	100	100	100	42	93
Splenomegaly	65	100	95	95	43	96
Anaemia	65	100	87	87	45	100
Hepatomegaly	60	92	92	92	33	73
Anorexia	40	62	70	70	27	60
Abdominal distension	33	51	30	30	27	60
Bleeding tendency	30	46	8	8	1	2
Jaundice	20	31	8	8	6	13
Oedema	25	38	8	8	8	18

The major clinical manifestations in our patients in comparisonwith previous series

Cases reported from Iran (21) , Morocco and other African countries usually have significant lymphadenopathy, this absent in our patients, which is similar to Saudi Arabian (16) and Indian experience (23). The sensitivity of the diagnostic methods in our study (IF AT and bone marrow examination) is comparable to that in other studies particularly for IF AT (11,15). Bone marrow examination , on the other hand , has a higher sensitivity rate (74%) than other studies (11,15,17), in these series the sensitivity of bone marrow examination ranges between 45 - 58% , in spite of that, our figure is still within the range mentioned in other text (24). The mortality in our patients (20%) is relatively higher than previously reported (11,15,17), this is probably due to delayed presentation , high frequency of complications in our patients , in addition to shortage of blood bank services in this city (inadequate blood bags , lack of cryoprecipitate and platelets concentrate, etc.) , malnutrition and shortage of proper antibiotics resulting from the economic embargo on this country.

Conclusion and Recommendations

1. Kala-azar is endemic in Qadisiah city and is of increasing incidence
2. Our patients had high frequency of bleeding tendency , jaundice and oedema in comparison with patients elsewhere.
3. Our patients with Kala-azar had relatively high mortality.
4. There is a nedd for better awareness of doctors particularly in the peripheral areas of the governorate about kala-azar to achieve early detection of cases and referral to the hospital.
5. Proper implementation of the control measures by improving the disposal of dead animals, their parts and organs mainly in poultry and abattoirs in the rural and suburban areas with elimination of stray dogs and spraying a suitable insecticide in the possible breeding places of sandflies.
6. Availability of the more sensitive diagnostic test for kala-azar (IFAT) in the central public health lab or in the maternity and children teaching hospital in this city.
7. Improvement of the blood bank services in this city.
8. An extended survey at the primary health care centers and the hyperendemic areas is needed to determine the real incidence of kala-azar in this city.
9. Establishment of a committee for kala-azar in this city , its main tasks are : reducing the incidence of kala-azar , followup of implementation of the control measures , performing a regular surveys , follow up of patients with kala-azar and planning an educational program for doctors and health workers in this city.

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