Visceral Leishmaniasis of Childhood

Abstract

Leishmaniasis is widespread in many countries, including Turkey. We present the clinical characteristics and the retrospective analysis of 22 children with visceral leishmaniasis, identified between 1995-2008. The mean age at presentation was 3.3±1.96 years (range 0-8). All patients had splenomegaly. Fever was found in 19 (86.3%) cases. Anemia, thrombocytopenia, and leukopenia was observed in all, 19 (86.3%), and 13 (61%) cases respectively.

Diagnosis of visceral leishmaniasis was made with the identification of amastigotes in giemsa-stained bone-marrow aspirate smears.

Initial treatment consisted of meglumine antimoniate in 19 (86.3%) patients and liposomal amphotericin B in 3 (13.7%) patients. Three children who did not respond to meglumine antimoniate were cured with liposomal amphotericin B.

The findings highlight liposomal amphotericin B as an effective therapy for visceral leishmaniasis in children. Early detection and appropriate management of complications may reduce morbidity and mortality in childhood visceral leishmaniasis.


Key words: Visceral leishmaniasis, childhood, liposomal amphotericin B

Introduction

Visceral leishmaniasis (VL), known as kala-azar, is caused by Leishmania species and is endemic in tropical and subtropical regions. It is transmitted with sandfly bites (1,2). VL caused by Leishmania infantum is found throughout the Mediterranean region, especially in southern Italy, France, Greece, Malta, and Turkey (3-9).

Leishmaniasis, a disease that may cause considerable diagnostic difficulty in the setting of a hospital in the developed world, may be contrac-

ted on short visits to countries where it is endem-
ic. Children with this disorder may be misdiag-

osed as having a primary hematological disor-
er, such as leukemia. Leishmaniasis may pre-

tsent as an acute disorder with fever, hepatosp-

lenomegaly or as a more chronic condition charac-
terized by increasing hepatosplenomegaly, lymphadenopathy, and pancytopenia. Pentavalent antimonial drugs have been used for many deca-

des as the standard treatment for VL. Pentavalent antimonials are safer than trivalent ones, but their adverse effects, such as life-threatening electro-
cardiographic changes are frequent (10). During the last
decade, the emergence of Leishmania strains that are
resistant to pentavalent antimonials and the occurrence of
side-effects have prompted the evaluation of other drugs,
including lipid formulations of amphotericin B (8,9,11,12).
Liposomal amphotericin B (L-AmB) was the first drug
approved for the treatment of visceral leishmaniasis by the
United States Food and Drug Administration (13). The
purpose of this study was to investigate the epidemiological,
clinical, laboratory and therapeutic features of 22 children
affected by VL in southern Turkey retrospectively.

Material and Methods

All children diagnosed as VL during the years 1995-2008 were included in study. All the data were taken from
patient records. Demographic characteristics, clinical and
laboratory findings, therapeutic interventions and clinical
outcomes were noted. Diagnosis of VL was established
with giemsa-stained bone marrow aspirate smears in all
cases.

The patients who presented from 1995 up to 2000
were treated with meglumine antimoniate (MA) (Glucantim;
Rhone-Poulenc, France) whereas those who presented
thereafter were treated with L-AmB (AmBisome; Gilead,
USA). MA was administered intramuscularly for 21 days at
a dosage of 20 mg/kg/day. L-AmB was administered in-
travenously at a dosage of 3 mg/kg for 10 days. All patients
were hospitalized during treatment. L-AmB was used for
three patients for the initial treatment and for three pati-
ents that did not respond to antimonial treatment
(4,5,8,9,11).

Clinical response was assessed at the completion of
treatment. Most of the patients were followed up for at
least six months after completion of treatment.

Results

Twenty two children were diagnosed with VL. The
median age of the patients was 3.3±1.9 years (range: 1-8
years). No patient had an underlying disease on admissi-
on. Splenomegaly, hepatomegaly, and fever were found in
all (100%), 20 (91%), and 19 (86.3%) patients on admis-
sion in our series.

Laboratory data usually show severe and progressive
hypochromic anemia, leukopenia with a predominance of
lymphyocytes and macrocytes, thrombocytopenia, hypoal-
buminemia with polyclonal hypergamaglobulinemia and,
at times, even an increase in liver function tests. All pati-
ents had pancytopenia and some had abnormal liver
function tests.

Diagnosis of VL is made by means of visualizing the
organism in giemsa-stained smears of splenic aspirate,
liver biopsy, or bone marrow. Examination of bone marrow
smears is an easy method to establish the diagnosis of VL
and is positive in 22-95% of cases (2,5,7). Specific sero-
logy and genomic amplification using polymerase chain
reaction are also useful for diagnosis. Confirmation of the
diagnoses of our patients were made with the examinati-
on of bone marrow.

An ideal drug for VL will lead to a clinical and parasito-
logical cure and avoid adverse effects and relapses. VL
usually responds to treatment with a pentavalent antimo-
rial, such as sodium stibogluconate or meglumine antimo-
rate. Side-effects of therapy are dosage and duration
dependent and may include painful injection, arthralgia,
fever, rash, elevation of hepatic enzymes, gastrointestinal
irritation, pancreatitis, renal failure, and particularly cardia-
cal toxicity.
When compared with other drugs used in the treatment of VL, treatment with pentavalent antimonial compounds is cheaper as the agent is readily supplied free of charge by the Ministry of Health in Turkey and the clinical response is also much better; hence it is still the antimicrobial of choice for VL. The resistance to this class of drugs is usually seen in India and Africa (1). In our series, the resistance was noted in 21% of patients.

Amphotericin B has good antiprotozoan activity, but has limitations because of its dosage dependent side-effects, including nephrotoxicity and thrombophlebitis. L-AmB is especially suitable for the treatment of leishmaniasis, because the drug is concentrated in the reticuloendothelial system; however, the cost precludes its wider use in developing countries (8,11,12). All our patients who used L-AmB were cured. After six months of follow up, no relapses were seen.

In conclusion, L-AmB appears to be an effective therapy for VL in children and could be used as a first line treatment. Early detection and appropriate management of complications may reduce morbidity and mortality in childhood VL.

References