

# The Relationship between Blood Group Type and Visceral Leishmaniasis in Iran

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## Abstract

**Background:** Visceral leishmaniasis (VL) or Kala-azar is still a common parasitic infection among children in Iran. This study was performed to investigate the relationship between blood group type and VL among Iranian patients.

**Methods:** were enrolled. The bone marrow materials of 249 children who were clinically suspected for VL were provided from the posterior iliac spine by Jamshidi's needle. LD bodies were identified in all cases and diagnosed as VL. The distribution of blood group type of all infected patients was compared with that of a control group of normal donors (2490).

**Results:** There were 198 males and 51 females among VL patients. In both the VL and control groups, the maximum percentage was found in blood group O and minimum in blood group AB.

**Conclusion:** Our results showed that the blood group was not a risk factor in the occurrence of VL. The ABO-Rh blood groups were not associated with the occurrence of VL in Iranian patients.

**Keywords:** Relationship; Blood group; Visceral leishmaniasis; Iran

## Introduction

Visceral leishmaniasis (VL) or Kala-azar is still a common parasitic infection among children in Iran. It is an endemic infection caused by *Leishmania infantum*.<sup>1</sup> The patients usually present with fever, splenomegaly and pancytopenia. The diagnosis of VL is made by the demonstration of *Leishmania donovani* (LD) bodies in the bone marrow aspiration and the biopsy materials. Immunofluorescent antibody titer (IFA) and PCR assay are helpful in cases with negative marrow smears.<sup>2</sup> These patients are usually treated well with the glucantime therapy (antimonial tartarate). The main aim of the present study was to investigate the relationship between blood group type and VL among Iranian patients.

## Materials and Methods

Two-hundred and forty-nine children who were clinically suspected for VL were enrolled. The bone marrow materials was obtained from the posterior iliac spine by Jamshidi's needle. LD bodies were identified in all cases and diagnosed as VL. The distribution of blood group type of all infected patients was compared with that of a control group of normal donors (2490). Statistical comparison was performed to find out the relationship between blood group type and VL, using Chi-Square test.

## Results

There were 198 males and 51 females among VL patients. In both the VL and control groups, the maximum percentage was found in blood group O and minimum in blood group AB. The ABO and RH

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blood group distribution are shown in Table 1 for the patients and in the Table 2 in Table 2 without any significant difference ( $p=0.85$ ).

**Table 1:** Kalazar patients (Case group) with different blood groups.

Blood group	A	B	O	AB	Total
RH +	69	39	100	10	218
-	8	1	22	0	31
Total%	30.9	16.1	49	4	249

## Discussion

VL is an important cause of morbidity and mortality among children in Iran. It is thought that blood group antigens play some part in the pathogenesis of VL. Greenblatt et al. (1981) have hypothesized that the leishmanial parasite might utilize a system of camou-

flage of mimicry of host blood group antigens to invade host defense mechanisms in human.

Our results showed that the blood group was not a risk factor in the occurrence of VL. The findings failed to support the hypothesis of Greenblatt et al. (1981). So, we conclude that ABO-Rh blood groups are not associated with the occurrence of VL in Iranian patients. The conclusion of our study is similar to that of Chatterjee et al. (1980), Evans et al. (1984), and Lal et al. (1995), which failed to support the hypothesis of camouflage, using blood group antigens.

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**Conflict of interest:** None declared.

**Table 2:** Blood groups of 2490 normal blood donors (Control group) referred to Shiraz Blood Transfusion Center.

Blood group	A	B	O	AB	Total
RH +	742	432	1020	106	2300
-	51	5	130	4	190
Total%	31.8	17.6	46.2	4.4	2490

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