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Case Report

Paediatrics Section

Autoimmune Haemolytic Anaemia: An Unusual Manifestation of Kawasaki Disease

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ABSTRACT

Intravenous Immunoglobulin (IVIg) can cause Autoimmune Haemolytic Anaemia (AIHA) in some patients. There are many reports of AIHA developing in children with Kawasaki Disease (KD) after they were treated with IVIg. However, AIHA is seldom reported at the onset of KD, prior to the treatment with IVIg. Here, we report a case of a 10-month-old infant, who developed AIHA alongside the manifestations of KD. Treatment with IVIg resulted in the resolution of symptoms of both KD and AIHA. We also present a review of the literature on similar findings. This suggests that AIHA may be an uncommon manifestation of KD; or that KD and AIHA may both be stimulated, in susceptible persons, by some common agent.

Keywords: Coronary artery, Dilatation, Cold autoantibodies

CASE REPORT

A 10-month-old infant (with no significant past medical history) presented to the Department of Paediatrics with fever, diarrhoea and vomiting from past two days. He was pale, had an erythematous maculopapular rash all over the body, non-purulent conjunctivitis, oedema of hands and feet; and dry, cracked and bleeding lips. Blood reports showed leucocytosis (16100/µL) and severe anaemia (Haemoglobin (Hb) 6.1 gm/dL). The initial laboratory reports are presented in the [Table/Fig-1]. The provisional diagnosis at admission was rendered as acute gastroenteritis, malnutrition with severe anaemia and possible sepsis. Empirically, he was started on intravenous ceftriaxone (a dose of 75 mg/kg/day). On the second day of admission, his Hb had fallen to 4.8 gm%. A blood transfusion was planned; however, his blood would not cross-matching with the blood available in the blood bank. Direct and indirect Coombs test were positive (clumping of RBCs was seen). Also, hot and cold auto antibodies (IgG and IgM respectively) were detected in the blood sample, suggestive of AIHA. On the third day of admission, IVIg 1 gm/kg/day for two days and intravenous dexamethasone at 0.2 mg/kg every eight hours, were started for AIHA.

S. No.	Investigation	Actual values (Normal range)
1.	TLC	16100/µL (4.5-10.5)
2.	Neutrophills	71% (40-75)
3.	Lymphocytes	06% (20-50)
4.	Monocytes	02% (2-10)
5.	Eosinophils	09% (1-6)
6.	Platelets	165×10^3/µL (150-450)
7.	Haemoglobin	6.1 g/dL (11.5-18)
8.	ESR (Westergrens)	22 mm 1st hr (<15)
9.	Reticulocytes	6.01 % (0.5-6)
10.	Sodium	132 mEq/dL (135-145)
11.	BUN	46 mg/dL (7-20)
12.	Creatinine	1.6 mg/dL (0.6-1.2)
13.	SGOT	20 U/L (5-40)
14.	SGPT	18 U/L (5-40)
15.	Total Protein	4.84 g/dL (6-8)
16.	Albumin	2.78 g/dL (3.5-5.5)
17.	CRP	38.938 mg/dL (<1.0)

[Table/Fig-1]: Laboratory investigations at admission.
TLC: Total leukocyte count; BUN: Blood urea nitrogen; SGOT: Serum glutamic oxaloacetic transaminase; SGPT: Serum glutamic pyruvic transaminase; CRP: C-reactive protein

Two discrete lymph nodes of 1.5 cm were noticed in the occipital region and post auricular region on Day four of admission, which were not present on initial presentation. He became afebrile within 48 hours of starting the IVIg infusion and steroids. His Hb went up to 5.6 gm/dL by Day five of admission. An echocardiogram was done on Day six, which revealed dilatation of right coronary artery (diameter of 2.3 mm, Z score of 2.7). The patient met the criteria for KD devised by the American Heart Association [1]. Aspirin was then started at 3 mg/kg/day. Platelet count was found to be 560×10^3/µL on Day eight of admission. The general condition of child improved and he was discharged from the hospital after eight days of admission, on aspirin at 3 mg/kg/day advised for six weeks. A repeat echocardiography remained pending for the present case. A long term follow up was planned with regular echocardiography; however, the patient was lost to follow up.

DISCUSSION

The IVIg is used in the treatment of both KD and AIHA. However, it can also cause AIHA [2]. The AIHA in KD after infusion of immunoglobins was reported by Tocan V et al., [3]. The AIHA seen before IVIg infusion in KD is rare. We performed a systematic search of the literature looking at 'Autoimmune Haemolytic Disease' in 'KD' before IVIg administration. A search of PubMed (on December 7, 2017) for these keywords yielded 17 reports, out of which seven did not pertain to cases of KD and AIHA, whereas 10 were found relevant. Out of these, four pertained to AIHA prior to the administration of IVIg for KD [4-7]. Hand searching through the references of these papers yielded one more case reported in a journal not indexed with PubMed [8]. The previously reported cases have been tabulated in [Table/Fig-2]. Two studies that were found were not in English language [7,8]. This is arguably the sixth case report of AIHA as onset of KD. It indicates that AIHA could be a rare manifestation of KD. The aetiology of KD is not known but it is believed that to be an autoimmune phenomenon provoked by bacterial, viral, mycoplasma, or non-living allergen [9,10].

Author Year, Country [Reference]	Age	Sex	Clinical Features	Investigations
Thakkar D et al., [4]	7 month	Male	• Fever, mild icterus, severe anaemia • Generalised lymphadenopathy and hepatosplenomegaly. • Erythema of palm and soles and desquamation.	• Hb 3.6 g/dL, WBC count: 41.7×10^9/L with 78% neutrophils. Platelet count 407,000/µL, reticulocyte count 3.4%. • Peripheral smear anisopoikilocytosis, polychromasia, neutrophilic leucocytosis with monocytosis and few atypical lymphocytosis. CRP 94mg/L. DCT +ve. • Mycoplasma IgM +ve
Jiang J et al., [5]	1 year	Female	Eyes conjunctival hyperaemia, bilateral neck, 2-3 bean sized lymph nodes. Throat and oral mucosal congestion, red lips, non chapped, coarse breath sounds.	• White blood cell count 16.1×10^9/L, neutrophils 9.9×10^9/L, lymphocytes 4.7×10^9/L, platelets 389,000/µL. • CRP 72.5 mg/L, SGOT 256 U/L, SGPT 323 U/L
Bunin NJ et al., [6]	7 weeks	Female	Febrile, irritable. Periorbital oedema, conjunctival injection, photophobia, oropharyngeal congestion with fissuring of lips, induration and oedema of hands and feet. No lympadenopathy or hepatosplenomegaly	Haemoglobin 11.8 g/dL with progressive anaemia, leucocytosis, thrombocytosis.

[Table/Fig-2]: Review of literature of AIHA at onset of KD.

CONCLUSION

One can speculate that both KD and AIHA are stimulated in susceptible persons by some common agent or maybe AIHA is a rare manifestation of KD. The exact aetiology of KD is not known even though there are many known causes for AIHA. The association between KD and AIHA may help, in the future, to elucidate the aetiology of KD.

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