INTRODUCTION

Idiopathic Hypereosinophilic Syndrome (HES) is an uncommon and potentially fatal disorder first described by Hardy and Anderson in 1968. It is defined as "persistent eosinophilia of greater than 1500/µl for more than 6 months with evidence of end organ damage but no cause was found after comprehensive investigations". Incidence of HES is one in one million population. It occurs sporadically with no geographic or environmental factors correlated with its incidence. It is more common among males (9:1 ratio) between the ages of 20 to 50 years. Childhood presentation of HES is rare.

The pathophysiology of HES is poorly defined, however, the dysregulation of cytokines like interleukin 5 (IL-5), interleukin 3 (IL-3) and granulocyte macrophage colony stimulating factor responsible for the maturation of eosinophils, is a primary feature. It leads to increase production or survival of eosinophils. Persistent eosinophilia causes damage to various organs due to eosinophilic infiltration of tissues and release of mediators. In HES, virtually any organ can be affected but the major target organs for tissue damage are the skin, heart, lungs, central nervous system, bone marrow and gastrointestinal tract.

This case report describes this rare syndrome affecting an even uncommon age group.

CASE REPORT

A six-year-old girl child presented to Neurology Department of Children Hospital Complex, Multan with one month history of fever and weakness of the right half of body. She was well one month prior to her illness when she developed fever, which was gradual in onset, high grade, intermittent and was associated with night sweats. Three days after fever, she developed weakness of the right half of body, which was sudden, progressive and was associated with two episodes of generalized tonic clonic fits lasting for 2-5 minutes. She had history of anorexia and loss of weight. There was no history of headache, vomiting, unconsciousness, or tuberculosis in family. She was fully vaccinated according to EPI schedule. Birth and developmental history was unremarkable. She was having two healthy siblings.

On examination, she was conscious and oriented. There was deviation of angle of mouth towards the left side. Speech was normal. She had right upper motor neuron type of facial palsy while the rest of cranial nerves were intact. Fundoscopy was normal. Motor system examination showed hypotonia, power of 2/5, brisk reflexes with extensor plantar and absent superficial reflexes on right side. The examination was unremarkable on left side. Sensory system was intact and signs of meningeal irritation were negative. Rest of systemic examination was unremarkable.

Investigations showed hemoglobin of 8.3 gm/dl, Total Leukocyte Count (TLC) of 43,600/µl with 63% (27,468/µl) eosinophils. Platelet count was 3,79000/µl. Computed tomogram of brain showed non-haemorrhagic infarction involving left internal capsule and basal ganglia. Coagulation profile, lipid profile and echocardiography were normal. Antinuclear factor was negative. Bone marrow examination showed eosinophilia with normal myeloblastic and lymphoblastic series. Cerebrospinal fluid examination, chest X-ray and...
Abdominal ultrasonography were normal. No parasitic or allergic cause was found for eosinophilia. Treatment was started with oral prednisolone 2 mg/kg/day in three divided doses along with aspirin 75 mg/day. One month after treatment, her TLC was 11,400/µl with 10% (1140/µl) eosinophils. Her fever settled along with improvement in malaise, irritability, hemiplegia and appetite. She stopped treatment after one month and came back for follow-up after 6 months with complaints of high fever, anorexia, weight loss and body aches. Her TLC was 32,000/µl with 63% eosinophils. Treatment was restarted with prednisolone, which was found to be ineffective after 4 weeks so hydroxyurea was added. She showed recovery on this combination therapy. Now, she is on regular follow-up.

**DISCUSSION**

Hypereosinophilic syndrome is a rare disorder characterized by sustained overproduction of eosinophils in the absence of any cause and a predilection for damage to multiple organ systems. Hypereosinophilia may induce thrombosis in various organs including heart and brain. Hypereosinophilic syndrome is divided into 3 types. The most prevalent is myeloproliferative type, which is characterized by clonal expansion of myeloid cells and is usually fatal without treatment. Other is a less prevalent type characterized by clonal expansion of T-lymphocytes and third is the one which does not fit into the first two categories. However, it has been difficult to assess the clonality of hypereosinophilic syndrome.

Usual age of presentation is in third to fourth decade of life but it can present rarely in children. Patients may be asymptomatic or may have an aggressive course leading to death within months to years. Presenting features includes anorexia, weight loss, joints aches and pains, fever, sweating, thromboembolic episodes, heart failure, splenomegaly, skin and central nervous system disease.

Hypereosinophilic syndrome presenting as acute hemiplegia in children without hypereosinophilic cardiomyopathy is rare and few cases have been reported in literature.

There is no effective therapy for HES. Current therapy consists of corticosteroids, interferon alpha and chemotherapeutic agents such as hydroxyurea, vincristine, etoposide, cyclosporine and 2-chlorodeoxyadenosine. Responses to therapy are frequently transient, and most patients require multiple therapies. More recently new agents directed at specific targets in the pathogenesis of HES have been developed. These include imatinib mesylate, a tyrosine kinase inhibitor and mepolizumab, an anti-IL-5 monoclonal antibody. In a small case series of patients, these agents have been shown to produce hematological and clinical responses in patients with HES. The long-term outcome of HES varies with reported median survival of 15 - 40% at 10 years.

**REFERENCES**