MSF Paediatric Days 2024
Abstract N°78

HENNA-INDUCED LIFE-THREATENING EFFECTS IN PREVIOUSLY UNDIAGNOSED G6PD-DEFICIENT CHILDREN: A CASE SERIES.

A. Mayas[1], N. Mohammed[1], A. Ali[1], S. Taher[1], T. Al-zubairi[1], T. Al-hideri[1]
[1]MCH, senior medical doctor, MSF-OCA, Taiz, Yemen

INTRODUCTION

Henna is a widely used traditional cosmetic agent for skin staining during ceremonial and social occasions in many countries including Yemen. The active ingredient in henna, similar to 1,4 naphthoquinones, acts as a potent oxidant of G6PD-deficient cells. Glucose-6-phosphate dehydrogenase (G6PD) deficiency is a common X-linked genetic disorder that affects millions of people worldwide. Individuals with this deficiency are at risk of developing haemolysis when exposed to certain triggers, including henna dye. Yemen lies in geographic area where the prevalence of this disease is high, at 6%. This case series aims to highlight the life-threatening effects of henna in previously undiagnosed G6PD-deficient children.

CASE DESCRIPTION

Four children who developed life threating complications after exposure to henna were investigated, observed and managed. Among the four cases, three were male children who exhibited severe haemolysis and life-threatening complications including acute bilirubin encephalopathy, renal impairment, and shock. The fourth case, a female child, experienced moderate haemolysis that resolved spontaneously without intervention. **Figures 1-3** show henna application in cases 1, 3 and 4.

Figure 1. Prominent area of henna application in the hands of case 1.

Figure 2. Henna application to the lower limbs of case 3.

Figure 3. Prominent area of henna application in the feet of case 4.

Case 1 involved a 2-month-old male child who presented with extreme pallor, jaundice, and symptoms of bilirubin encephalopathy, including abnormal limb movement and unresponsiveness except to pain. Hemoglobin levels were low at 5.7 g/dl, and total bilirubin was significantly elevated at 61.8 mg/dl. Urgent interventions, including blood transfusion, intensive phototherapy, antibiotics, and folic acid, led to improvement, and the patient was discharged after six days.

In Case 3, a 4-month-old male child presented with poor feeding, vomiting, and respiratory distress three days after henna paint application. Hypoxia was observed, and the patient had a hemoglobin level of 3.4 g/dl. Oxygen therapy, blood transfusion, and antibiotics were administered, resulting in discharge after five days.

Case 4 involved a 2.5-month-old male child who exhibited tea-colored urine, poor feeding, vomiting, fever, pale skin, and abnormal upper limb movements resembling bicycling. Hemoglobin levels were critically low at 2.1 g/dl. This patient required admission to the paediatric critical unit and received multiple blood transfusions, antibiotics, dopamine infusion, and anticonvulsant drugs. After a challenging 20-day hospitalisation, the patient was ultimately discharged.

Despite the severity of hemolysis and complications in the male patients after henna exposure, prompt medical interventions, including blood transfusions and supportive care, led to successful outcomes and patient discharge. **Table 1** shows details of each case.

Table 1: Details of the four cases

Case number	1	2	3	4
Age	2 months	3 years	4 months	2.5 months
Gender	Male	Female	Male	Male
Time of onset of symptoms after henna exposure	2 days	12 days	3 days	2 days
Hb at presentation	5.7 g/dl	8.8 g/dl	3.4 g/dl	2.1 g/dl
Total bilirubin at presentation	61.8 mg/dl	16.4 mg/dl	0.4 mg/dl	3.4 mg/dl
G6PD enzyme assay	Deficit enzyme	Deficit enzyme	Deficit enzyme	Deficit enzyme
Complications	Acute bilirubin encephalopathy sepsis and severe anaemia	No complications	Severe anaemia	Severe anaemia, Acute kidney injury, meningitis, septic shock
Treatment	Blood transfusion, phototherapy, antibiotics	IV Fluids	Blood transfusion, IV fluids, antibiotics	Multiple blood transfusions, IV antibiotics
Outcome	Complete recovery	Complete recovery	Complete recovery	Complete recovery

These cases underscore the potential dangers of henna use in G6PD-deficient individuals and highlight the importance of prompt diagnosis and proper management to prevent life-threatening outcomes.

DISCUSSION

Henna-induced acute haemolysis can have life-threatening effects in G6PD-deficient individuals. The severe complications encountered, such as acute bilirubin encephalopathy and renal impairment, underscore the significance of recognising and addressing this potential risk. It is crucial to discourage henna use in children, especially those already identified as G6PD-deficient. Healthcare professionals should consider G6PD deficiency as a potential diagnosis in any child presenting with acute anemia following henna application. Increasing awareness about this association can lead to early diagnosis, appropriate management, and prevention of adverse outcomes in affected children.

ETHICS STATEMENT

This study meets the exemption criteria for ERB review. Exemption granted by OCA Medical Director. Written informed consent was obtained from the parent(s) to share the cases presented in this poster.