

PANCYTOPENIA IN CHILDREN: ONE-YEAR OBSERVATIONAL PROSPECTIVE STUDY AT ALEXANDRIA UNIVERSITY CHILDREN'S HOSPITAL

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INTRODUCTION

Pancytopenia is a frequent entity encountered in the daily clinical practice. It can be the presentation of different conditions, ranging from benign and transient conditions, e.g., infections to malignant and life-threatening diseases, e.g., acute leukemia. There are no published studies about the prevalent causes of pediatric pancytopenia in Egypt. Since the causes of pediatric pancytopenia vary widely among different countries, we conducted this study to determine the causes in our population.

AIM OF THE WORK

To describe the epidemiology of pediatric pancytopenia in Alexandria University Children's Hospital.

PATIENTS AND METHODS

It was a prospective observational study conducted on all children aged 6 months to 6 years presented with pancytopenia to Alexandria University Children's Hospital during the period from 1st November 2019 to 31st December 2020. Patients who are either already diagnosed or receiving immunosuppressive or anti-metabolite drugs were not included in the study. All patients were subjected to history taking, complete physical examination and basic lab investigations.

RESULTS

Pancytopenia was diagnosed in 91 patients during the study period, either admitted in the pediatric ward (73 patients, 80.2%) or in the pediatric intensive care unit (18 patients, 19.8%). The male to female ratio was 0.9:1. The median age of patients was 24.1 months (range 13 – 39.2).

The triggers of pancytopenia in our patients are illustrated in Figure 1. Viral infections included Epstein-Barr virus (3 patients), Cytomegalovirus (5 patients), Hepatitis A virus (one patient) and Herpes simplex virus type 1 (one patient). Bacterial infections included bacterial pneumonia, meningitis, gastroenteritis and sepsis. Non-specific viral infections included mostly upper respiratory tract infections. The distribution of initial cytopenias on admission is illustrated in Figure 3. Every patient in the study had at least 2 cytopenias on admission. The causes of pancytopenia identified are shown in Figure 2. Common clinical presentations were fever, pallor, bleeding and hepato-splenomegaly. The outcome of pancytopenia is illustrated in Figure 4.

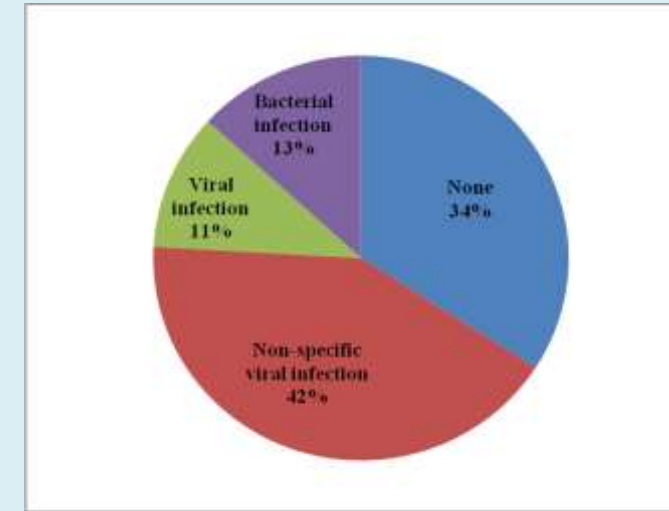


Figure 1: Triggers of pancytopenia.

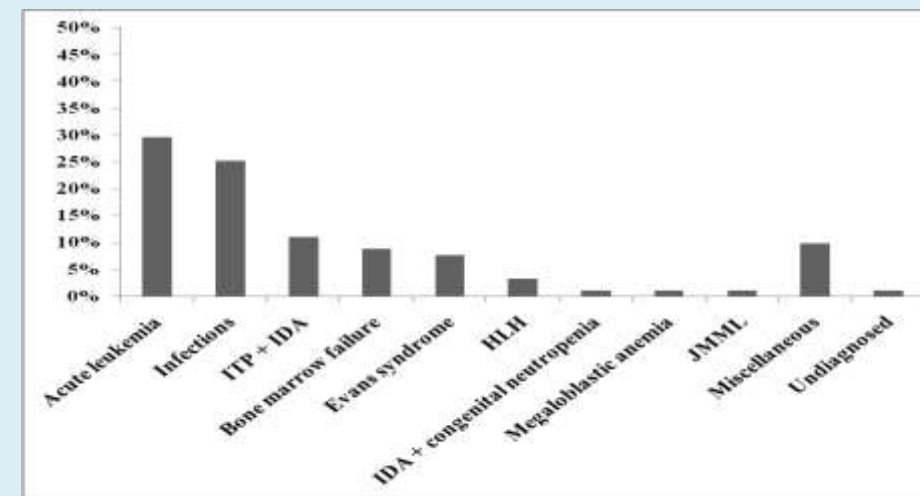


Figure 2: Final diagnosis of pancytopenia

ITP: idiopathic thrombocytopenic purpura, IDA: iron deficiency anemia, HLH: Hemophagocytic lymphohistiocytosis, JMML: Juvenile myelomonocytic leukemia.

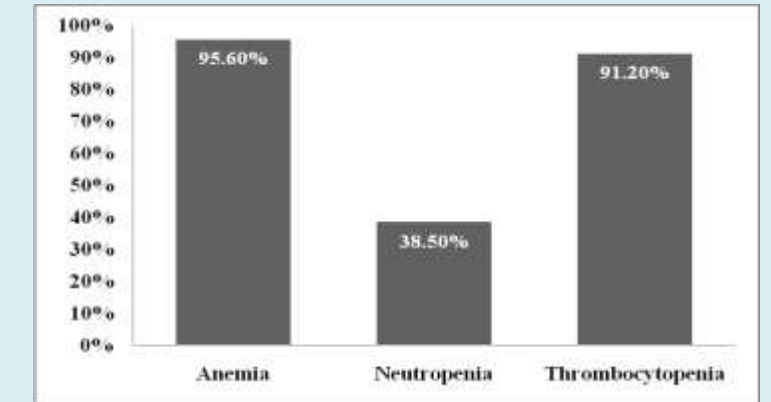


Figure 3: Distribution of different cytopenias on admission..

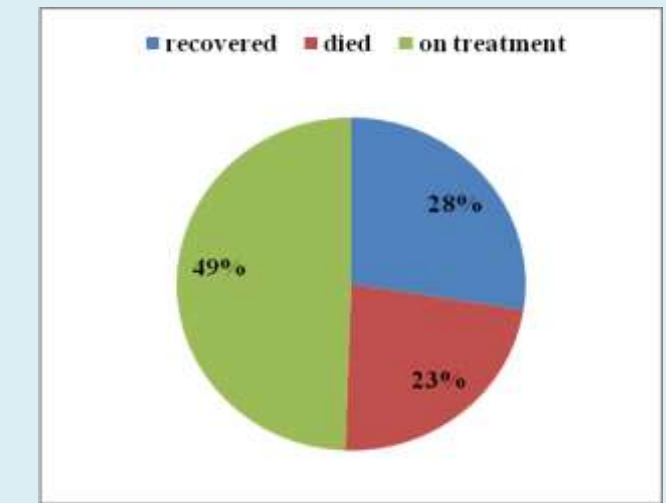


Figure 4: Outcome of pancytopenia

CONCLUSION

Pancytopenia is a common medical condition in children. Acute leukemia and infections are the most common causes in our study population while megaloblastic anemia is rare. A diagnostic algorithm should be created to address the common causes of pancytopenia in a cost-effective manner.