INTRODUCTION

INTRODUCTION AND AIM OF THE WORK

Neoplasia is not a single disease. It is a group of diseases sharing a common pathological process, but differing in aetiology, epidemiology, pathological features, clinical manifestations and therapeutic problems.

Neoplasms may occur at any age and can affect any tissue without exception. Children differ from adults in the relative frequencies of various tumours. Also, childhood malignancies are characterized by high hereditary and familial tendencies in some types, acute clinical onset, rapid spread, high radiosensitivity and low therapeutic ratio. The main causes of death in children with malignant diseases are infections, debility, cachexia as well as hepatic and renal failures. It was stated that cancer is the second common cause of death among children in England and Wales; comming after accidents (Registrar General, 1971).

Certain chemical elements are present in human tissues and fluids in minute amounts. The early workers were unable to measure their exact concentrations. These elements were mentioned to occur in traces, and

hence they took their generally used name "Trace elements". Other terms as "minor elements", "oligoelements" and the more recent and more acceptable "micronutrients" have been used to refer to them (Underwood, 1971).

The trace elements constitute less than 0.01% of the human body weight. Despite their relative scarcity, their atoms are present in large numbers and each is believed to play an important role in human growth and development (Shaw, 1980). For example the body of a full term niwly born infant, comprising some 3.4×10^{26} atoms, contains about 1.4×10^{26} atoms of trace elements (Shaw, 1979).

These trace elements are classified into three groups; the dietary essentials, the possibly essentials and the non-essentials. The trace elements essential for the higher animals including man are zinc, copper, cobalt, chromium, manganese, molybdenum, selenium, tin and iodine (Underwood, 1971).

In the search for possible causes of cancer on one hand, and the need for a modality affording early diagnosis and follow up of malignant states on the other hand, attention was paid to the abnormalities

in metabolism of trace elements in neoplastic diseases. The blood serum levels of some trace elements in these diseases have been the subject of a multitude of investigations, and their possible involvement has been well recognized in many cancerous conditions (Margalioth et al., 1983).

In this study, our aim is to detect some of the changes in trace elements' metabolism that may be present in children with malignant diseases. These changes, if present, may be of aetiologic, diagnostic, prognostic and/or therapeutic value.