INTRODUCTION

Leukemia is a cancer of the blood cells that begins in the bone marrow or the lymph glands where blood cells are made. Bone marrow occupies the center of all bone, especially bones of the pelvis, the lower spine and thighs, while lymph nodes are allover the body ***(Anthony, 2005).*** Leukemia arises in the marrow progenitor cell, where excessive numbers of "leukemic blasts" replace normal marrow hematopoetic cells ***(Gary et al., 2006).***

Leukemia is the most common type of cancer in children; it accounts for about 30% of all children cancers ***(National Cancer Institute, 2004).*** There are several types of leukemia, broadly categorized into acute and chronic. Acute leukemias are classified into acute lymphatic leukemia (ALL), which is responsible for about 70% to 75% of childhood leukemias, and acute myeloid leukemia (AML), which accounts for almost all the rest. In contrast to acute leukemias, chronic leukemias evolve over month to years, and are very rare in children ***(Freeman, 2003; Klossner and Hatfield, 2006).***

Acute lymphoid leukemia is the most common type of leukemia in young children ***(Steuber and Poplack, 2003).*** According to ***William et al., (2007),*** it accounts for about 25% of all cancer diagnosis in patients younger than age 15 years. Worldwide, the incidence of ALL is about 1.25.0000 children per year. The peak age at onset is 4 years, and 85% of patients are diagnosed between age 2 and 10 years. Acute lymphoid leukemia occurs more frequently in males than in females ***(Tallman, 2005).***

In Egypt, leukemia in children is relatively common, contributing to about 36.7% of all neoplasms ***(NCI, 1997).*** More recently, 306 (35.5%) new cases of leukemia were diagnosed among children during the year 2004 in the National Cancer Institute in Egypt ***(NCI, 2004).***

The exact cause of leukemia is unknown. However, some factors are closely linked with the development of leukemia such as environmental factors such as ionizing radiation and chemical exposures, chromosomal abnormalities like hereditary syndromes, Down syndrome, or viruses ***(Steuber and Poplack, 2003).*** Meanwhile, the clinical manifestations of leukemia may appear abruptly or have an insidious onset. Acute lymphoid leukemia is often called the great "imitator" because of its non- specific symptoms like anorexia, irritability, lethargy, pallor, bleeding, petechia, leg and joint pains, and fever ***(Eugence et al., 2004).***

Treatment of acute leukemia consists primarily of chemotherapy with a combination of anti- neoplastic agents targeted at different phases of the cell cycle ***(Liheteh, 2005).*** The drug therapy is divided into four components, which are remission induction, consolidation, continuation or maintenance, and treatment of sub- clinical central nervous system (CNS) leukemia (CNS prophylaxis). Induction therapy generally consists of 3-4 drugs, which may include glucocorticoids, vincristine, asparaginase, and anthracycline. This type of therapy induces complete remission in more than 95% of patients. Consolidation therapy is given soon after remission has been achieved in an attempt to further reduce the leukemic cell burden before the mergence of drug resistance. In this phase of therapy, the drugs are used at higher dose than during induction. Consolidation therapy first

used successfully in treatment of patient with high- risk disease ***(Gaynon et al., 2003; Calabretta and Perrotti, 2004).***

The nursing care for the child with leukemia is directly related to the regimen of therapy. Nurses in all settings have a crucial role in assessing the severity of neutropenia and in preventing and managing infection complications. Nurses must be administer novel therapies, manage side-effects, understand the pathology of bone marrow suppression, and follow the hospital rules ***(Whitlock et al., 2005).***

Nursing interventions play an important part in alleviation of complication and in ensuring that treatment is correctly and efficiently given. Interventions focused on physical care likely to be evaluated are frequently providing a means of monitoring the quality of this aspect care. It is important to understand the role of other nonphysical factors in maintaining quality of life. The nurse as a health educator has an important role to play in facility good practice. It is imperative that the nurse is acting in the teaching setting, promoting facilitating, supporting, and evaluating change ***(Hoffman, 2000).***

Although leukemia is the most common childhood cancer, clinical experience and studies have pointed to nurses' inadequate knowledge about most of the procedures related to therapy of these diseases. They have also a lack of understanding about how and when to apply knowledge into skills, in addition to unawareness about the importance of proper performance and its impact on reducing the side effects on affected children. This was often attributed to inadequate training of nurses in the oncology unit. So, this study is an endeavor to improve nurses' knowledge

and performance in clinical area, in an attempt to reduce morbidity and mortality rates among children with leukemia. This will be achieved through design and implementation of a teaching program that emphasizes the importance of proper performance and its effect on children condition.