

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار





بعض الوثائق الأصلية تالفة





بالرسالة صفحات
لم ترد بالأصل



B17 A C Y

**NOSOCOMIAL INFECTIONS AMONG
LEUKAEMIAS AND LYMPHOMA
PATIENTS UNDERGOING
CHEMOTHERAPY AND IRRADIATION**

THESIS

*Submitted to The High Institute of Public Health
in partial fulfillment of the requirements for the
Degree of Doctor of Public Health
(Microbiology)*

By

Wafaa Mohamed Kamel Bakr

M.B.B.Ch.

Master of Public Health (Microbiology)

**High Institute of Public Health
Alexandria University
1999**

B

12A-E

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَفِي أَنْفُسِكُمْ أَفَلَا تُبْصِرُونَ

صَلَّى
الْعِظَمَاءُ

الزلا رياس ٢١

SUPERVISORS

Prof. Dr. Laila El Attar

Professor of Microbiology
Microbiology Department
High Institute of Public Health
Alexandria University

Laila

Prof. Dr. Nier M. El-Ghamry

Professor of Clin. Oncology and
Nuclear Medicine
Faculty of Medicine
Alexandria University



Dr. Aida Aly Nazeir

Professor of Haematology and Internal Medicine
Internal Medicine Department
Faculty of Medicine
Alexandria University

Dr. Moustafa Mourad

Assist. Professor of Microbiology
High Institute of Public Health
Alexandria University

Mourad

Dr. Abd El-Fattah El-Morshedy

Assist. Professor of Microbiology
High Institute of Public Health
Alexandria University

El-Fattah

To the soul of my father
&
to the lovely members of my
family.

List of Contents

	Page
I Introduction	
• Nosocomial infections	1
• Factors associated with nosocomial infections	3
I. Sources of infection	3
II. Means of transmission	7
III. Susceptible host	7
• Cancer and Infection	15
I. Innate immunity defects	15
II. Adaptive immunity defects	16
• Treatment modalities and infection	17
I. Chemotherapy	17
II. Radiotherapy	21
• Intentional trauma and infection	23
I. Surgery (splenectomy)	23
II. Medical devices (vascular catheters) and infection	23
• Effector cells and infection	25
I. Neutropaenia and neutrophil dysfunction	25
II. Monocytopaenia	26
III. Lymphopaenia and lymphocyte dysfunction	26
• Nosocomial pathogens	27
History	27
I. Gram positive organisms	29

	Page
II. Gram negative bacilli	33
III. Fungal infections	36
• Site distribution of nosocomial infections	40
Urinary tract infection	40
Blood stream infections	41
Nosocomial pneumonia	43
• Prevention and control of nosocomial infections	46
I. Exclusion of sources of infection	47
II. Interruption of the means of transmission	48
III. Enhancing the host's ability to resist infection	52
• Laboratory support functions	53
II Aim of the Work	54
III Material and Methods	55
IV Results	71
V Discussion	129
VI Summary and Conclusion	151
VII Recommendations	156
VIII References	157
IX Appendices	
X Arabic Summary	

INTRODUCTION

INTRODUCTION

Nosocomial Infections

Nosocomial infections are hospital acquired infections that are neither present nor incubating at the time of admission. (Nosokomeion = hospital).^(1,2)

As most nosocomial infections are identified as caused by vegetative bacteria, it is by convention that hospital-acquired infections are those that become manifest after 48 hours from admission. For organisms with longer incubation periods (e.g. *Legionella* or some viruses), infections are not called nosocomial after 48 hours, but only at a time beyond their incubation.^(3,4)

The first stage in the history of nosocomial infections have begun with the investigations of Semmelweis in 1850 when he made the unpopular suggestion that puerperal fever was carried on the hands of physicians who came directly from attending an autopsy to the delivery ward without washing.^(5,6) But interest in nosocomial infection began long before microorganisms have been implicated as their cause and probably date back to the first hospital, room, or gathering sick people in a geographic area together, therefore, it has occurred for the first time when one person was cared for by another.⁽⁷⁾

Despite the many advances in modern medicine, patients are at increased risk for acquiring infections merely by being hospitalized.⁽¹⁾

Nosocomial infections represent an important endemic problem affecting about 5% to 10% of all hospitalized patients.⁽⁸⁾ In other words 1 in every 7 patients may acquire an additional infectious disease after hospital admission.⁽²⁾

Nosocomial infections result in numerous adverse outcome and add significant morbidity, mortality, and economic burden to those expected from the underlying disease alone.^(3,9)

The Center of Disease Control and Prevention (CDC) in 1993 has conducted an ongoing collaborative surveillance system called the National Nosocomial Infections Surveillance System (NNIS), among selected hospitals in the United States to obtain national data on nosocomial infections where they found that the average nosocomial infection prolongs hospital stay by about 2-3 days and this results in excess hospital stay costs of more than \$10 billions annually.^(3,10)

Factors Associated with Nosocomial Infections

For the development of nosocomial infections three components are necessary, a source of infectious organisms, a mean of transmission, and a susceptible host.⁽¹¹⁾

The mechanisms and interactions of these three components are often referred to as the chain of infection (Fig 1). When all components are present under the right circumstances, an infection develops.⁽¹²⁾

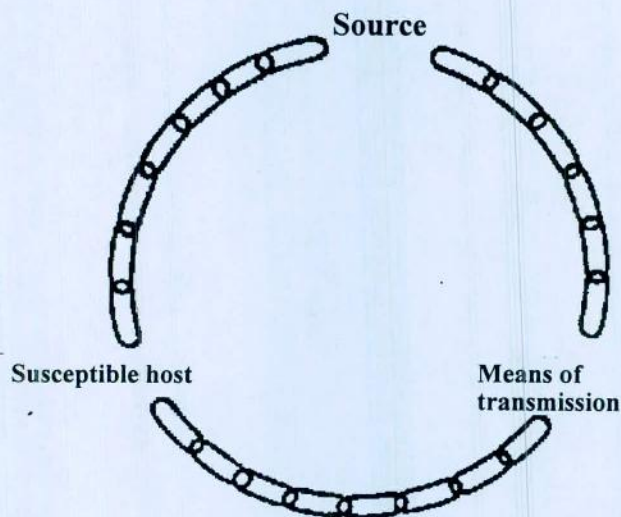


Figure (1): For an infection to occur, all three parts of the infection chain must be present, and all criteria must be met⁽¹¹⁾

I- Sources of infection

Hospitals are unavoidably reservoirs of virulent and opportunistic pathogens which pose no danger to normally healthy persons or to persons