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Short Communication

Antibiotic Resistance in the Elderly

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Abstract

This is a short communication article on antibiotic resistance in the elderly. The elderly is prone to infections and therefore the use of antibiotics in the elderly is common. Literature review was done using Medline, Google and PubMed.

Keywords:
Elderly; Antibiotic; Resistance; Bacteria

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Introduction

Antibiotic resistance is one of the global leading problems facing medicine as many micro-organisms are developing resistance to antibiotic they were previously sensitive to. This has a lot of impact on

the health care. Resistance to drugs including antibiotics impacts negatively on the quality of life of the patients. Antibiotic resistance is a very important healthcare issue that has significant implication for the patient and the society[1-3]. A significant proportion of health resources are consumed by elderly persons[4,5]. The rapid emergence of resistant bacteria is occurring worldwide therefore endangering the efficacy of antibiotics. One of the problems causing antibiotic resistance is the misuse of these drugs as in some countries they can be purchased over the counter without a doctor's prescription therefore the correct dose and duration cannot be guaranteed. The emerging problem of antibiotic resistance is a serious threat to global public health 6 and a problem in nursing homes therefore threatening the ability to treat infections[7]. Antibiotic resistance is a problem in nursing homes[7]. Geriatric facilities are reservoirs for multidrug resistant organisms and other nosocomial pathogens[8].

What Is Antibiotic Resistance?

Antibiotic resistance is the ability of bacteria not to be susceptible to antibiotic that means the bacteria can no longer be killed or stop growing to an antibiotic that previously kills it or stops it from multiplying when the antibiotic is administered in the correct dose, route or administration and frequency.

Antibiotic Use in the Elderly

Antibiotics are the most widely used and misused agents and this contributes to the huge growing global problem of loss of efficacy due to resistance. Inappropriate use of antibiotics is the key driver in antibiotic resistance[1]. Whenever antibiotics are taken, resistant bacteria are not killed only bacteria that are susceptible to the antibiotic are killed.

Infections in the Elderly

Infections to which the elderly patients were particularly vulnerable are respiratory tract infections (*for example bronchitis, bacteria pneumonia, influenza), urinary tract infections (particularly clostridium difficile*) and acute bacteria skin and soft tissue infections[2, 8]. The elderly is susceptible to infections because:

a. They have a weaker immune system (immunity is low) therefore they cannot fight infections.

b. They may have chronic illness that causes immunosuppression for instance diabetes mellitus, renal failure.

c. Increasing age

d. Functional impairment

e. Invasive devise may be inserted into their bodies making them susceptible to infections for instance the presence of urinary catheter increases the risk of urinary tract infections.

f. Living in long term care facilities such as nursing homes increases the susceptibility of contacting an infection.

g. Changes in the body organs can cause the susceptibility to infections in the elderly.

Treating elderly patients with infections represent one of the greatest challenges to healthcare providers[2]. Infections caused by multi-resistant bacteria are increased among the elderly living in nursing homes[7]. The elderly are the largest growing sector of the population and suffer excessively from infectious diseases 2. Therefore infectious diseases are among the principal causes of morbidity and mortality in this age group especially those residing in long term care facilities[2]. The physiological changes that occur with aging affect the pharmacokinetics parameters of many medicines including antibiotics[4]. Infections caused by multi-resistant bacteria are increased among the elderly living in nursing homes[2-3, 9].

Antibiotic Resistance in the Elderly

Improper antibiotic prescribing practices may lead to the unnecessary use of antibiotics and therefore contributes to the proliferation of resistant bacteria[1]. Antibiotic resistance is a problem in nursing homes as infections caused by multi-resistant bacteria are increasing among elderly residents in nursing

homes[2]. Nursing homes for the elderly are reservoirs for antibiotic resistant bacteria strains as a result of antibiotic use in these long term care facilities. Multidrug resistant pathogens are frequently recovered in these long term care facilities[2].

The anatomical and physiological changes caused by aging, usage of urinary catheter, nasogastric and percutaneous feeding tubes and intravenous catheters are common in nursing homes, all these predisposing the elderly to bacteria colonization and infections.

Impact of Antibiotic Resistance

1. Treatment failure as the micro-organism(s) is (are) no longer susceptible to the antibiotic.

2. There is greater disability due to ill health and death.

3. There is prolonged stay in the hospital due to treatment failure.

4. There is more financial expenditure on the cost of treatment.

Prevention of Antibiotic Resistance in the Elderly

Antibiotic resistance cannot be totally prevented in the elderly.

1. Preventing infections thereby preventing the spread and transfer of antibiotic resistant strains.

2. Tracking of the antibiotic resistant strains.

3. Use of antibiotics only when necessary therefore the need for training and retraining of physicians on the use of antibiotics. Antibiotics should be used following reports from culture and sensitivity and when the patient has symptoms.

4. Development of new antibiotics.

5. Narrow spectrum antibiotics should be used as they are effective against specific micro-organisms than broad spectrum antibiotics.

Conclusion

Antibiotic resistance is common and affects the elderly. It impacts negatively on these senior citizens who are predisposed to it especially those residing in long term care facilities.

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