Public awareness for prevention of antibiotic resistance

Factors Contributing To Antibiotic Resistance Can Be Prevented By RaisingPublic Awareness & Prevention Methods

Abstract

This report looks at some of the reasons behind the spread ofantibiotic resistance. From the literature four key factors were identified that contribute to antibiotic resistance: over prescription, self-medication, agricultural use and hospital use of antibiotics. This report identifies the factors that contribute to antibiotic resistance and the methods used to prevent them.

Introduction

Antibiotic resistance isbecoming an increasing problemall over the world. The percentage of resistant bacteria has increased by 65% from 2010 to 2015 and has been predicted to increase continuously (NHS, 2018). The increase in resistance bacteria does not only decrease the ability to treat infections and illnesses but it also causes serious health problems, suffering, and even death. Furthermore, this leads to increased cost and extended treatments which causes financial strain on hospitals and nursing homes. This problem, however, can be resolved by using prevention methods and raising public awareness. This paper will discuss the factors that contribute to the spread of antibiotic resistance and the methods used to prevent them. Overall, raising public awareness and prevention methods could help reduce the spread of antibiotic-resistant bacteria.

Key findings and discussion

From the literature, four mainissues were identified as causing antibiotic resistance and are discussedbelow.

Over-Prescription

Unnecessary prescription ofantibiotics has been noted as being one of the main reasons for antibioticresistance. In Britain, it is found that 10% to 50% of outpatient antibioticprescriptions are unnecessary (Schwartz, B. 1998). The most important decisionis to be made by primary care physicians, and that is whether to prescribeantibiotics to a patient with the evident signs and symptoms of a bacterialinfection. As it is difficult to distinguish the symptoms of a bacterialinfection from a viral infection, physicians are uncertain about whether toprescribe antibiotics. The physicians might feel under pressure and a duty toprescribe patients with antibiotics for a mild but uncomfortable illness(Robert, M et al. 1996). When antibiotics are taken unnecessarily, theantibiotics attack the beneficial bacteria in the human body. As a result ofthis misdirected treatment, antibiotic-resistant properties can be developed inharmless bacteria which can be shared with other bacteria or create anopportunity for potentially harmful bacteria to replace the harmless ones(Ventola, Cl. 2015). However, encouraging detained prescription of antibiotics, increasing communication skills with patients and limiting the prescription ofantibiotics can decrease the rate of antibiotic resistance (Llor, C andBjerrum, L. 2014).

Self-medication

Another factor contributing to theresistance of antibiotics is self-medication. Self-medication with the use ofantibiotics is becoming increasingly common

in different parts of the world.(Llor, C and Bjerrum, L. 2014). In some countries, antibiotics are sold byvendors illegally, without a prescription. This can be done on the street oronline. This is common in various different parts of Asian countries and evenin Southern European countries. In other countries, antibiotics are madeavailable to the free market, outside of pharmacies. As a result of theseantibiotics being unprescribed, people may consume them the wrong way or whenthey are not required (Rose-Ann, G. 2012). Bacteria are able to adapt andchange over a period of time and this is especially the case for those bacteriathat are exposed to an antibiotic but not entirely killed. If bacteria hassurvived an antibiotic course, another antibiotic is required in order to getrid of the remaining bacteria. If the bacteria become resistant to the secondcourse of antibiotics, yet another is required. This problem can be repeateduntil a bacterium that is unable to be treated is produced (Stuart, B. 2002). The Enforcement of governmental laws prohibiting over-the-counter sales ofantibiotics, educational interventions such as public relations campaigns withsmall messages, community accessible outreach activities and patient educationat clinics can possibly cause a reduction in the rate of resistant bacteria(Schwartz, B. 1998).

Agricultural Use

Antibiotic resistance can alsodevelop through the use of antibiotics in agriculture. Alongside medical misuseof antibiotics, the agricultural use of antibiotics is another factor that issusceptible to resistance (Khachaturian’s, G. 1998). In various parts of theworld, vast quantities of antibiotics are used in the production of meat andaquaculture. This is done by adding small quantities of antibiotics to theanimals feed over a long period of time. One of

the main reasons for this is toincrease growth rates of livestock, which in turn benefits the farmers as theymake more profit (Witte, W. 1998). However, some antibiotics can be used toprevent illnesses or are used as a treatment for illnesses. The use ofantibiotics in livestock does not only harm the animal but can also bringantibiotic resistance to humans through the consumption of meat. Healthproblems such as indigestion through airborne bacteria can also be transmitted(Uppsala University, 2018). Some strategies that can be used to reduce thisproblem include training farmers in animal health care, setting reduced targetsfor food production and illegalizing the use of antibiotics for meat productionpurposes (Timothy, L et al. 2012).

Hospital Use

The use of antibiotics is common innursing homes and hospitals and therefore critically ill patients are morelikely to infections and often require the need for antibiotics (Mellon, L. 2001). Person-to-person transfer of resistant bacteria is very common insituations where the susceptible population is in close contact withindividuals that possess resistant bacteria. As a result of this, antibiotic-resistant bacteria is most rapidly spread in nursing homes andhospitals (Rao, G. 1998). Resistant bacteria are transmitted indirectly throughthe environment, staff, and equipment. This is the most common method of spreadin nursing homes and hospitals. The staff may also carry the resistant bacteriaon their hands, clothes and could even become carriers of the resistantbacteria for a long period of time. The environment of a patient could becontaminated by resistant bacteria and therefore is easily transmitted to otherpatients. As the direct transmission of resistant bacteria is unlikely, dropletor droplets of nuclei can be transmitted

to staff or patients through airbornebacteria. Prevention of the development of antibiotic-resistant bacteria can belimited by evaluating hospital hygiene practices and infection controls, shortening the time of hospitalized patients and providing at home treatment(Rao, G. 1998).

Conclusion

There are a number of differentfactors that contribute to the spread of antibiotic resistance but can bereduced by raising public awareness and prevention methods. Theover-prescription of antibiotics is identified as one of the most importantfactors which lead to antibiotic resistance. The factor can be addressed by encouragingdetained prescription of antibiotics, increasing communication skills withpatients and limiting the prescription of antibiotics. Ultimately, if all thesefactors are addressed the spread of antibiotic-resistant bacteria will decrease. If these prevention methods were more widespread and comprehensive, then theywould be more effective at preventing the spread of antibiotic resistance.

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