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Non-communicable Disease – the 21st Century challenge in Global Health?



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Non-communicable diseases. This subject, alongside global warming, terrorism and pollution, is one of the regular headlines in today's news.

Introduction

The question should be asked...what are non-communicable diseases and why do we need to educate ourselves on the subject?

In this increasingly westernized world, non-communicable diseases such as chronic pulmonary disease, cancers, diabetes and of course cardiovascular disease have not gone unnoticed as imposing threats to our health and safety. Their invisible counterpart – the diseases affecting mental health – also results in damage to health in more ways than one.

Facts:

- As at 2008, non-communicable diseases were found to account for 60% of global mortality ^[1].
- As opposed to popular belief, these are not diseases of affluence. They affect the poorest populations of the world, accounting for 80% of deaths in the low and middle-income countries ^[2].
- Non-communicable diseases affect the young as well as the old. More than 50% of the population with non-communicable diseases, aged under 70 suffer from diabetes. One in four deaths attributable to global non-communicable disease occurs before the age of 60 ^[2].
- Non-communicable diseases are to blame for 65% of female deaths worldwide ^[2].
- 80% of deaths attributable to heart disease and diabetes are preventable, as are a third of cancers ^[2].
- Their invisible counterpart – the diseases affecting mental health – predisposes to increased risk of physical illness. An example is the doubled risk of cardiovascular disease and diabetes doubles due to lifestyle factors and medication ^[1]

Risk factors

These diseases share similar determining factors, hence offering opportunities for prevention and change.

1. Tobacco ^[3]: The use of tobacco products remains ^[3] the most avoidable cause of cancer ^[4] in addition to increasing predisposition to cardiovascular and respiratory disease ^[5]. In the 20th century, an estimated 100 million people ^[3] died due to tobacco-related diseases. It is estimated that by 2020, a tenth of world deaths will be attributable to tobacco and its products. It is currently accountable for over a third of lung cancer ^[3], just under 50% of chronic respiratory disease and 1 in 10 causes of cardiovascular disease.

2. Unhealthy diets ^[3]: The case of the modern diet is a ying-yang one. Despite the vast difference seen between the nutrition problems in developed countries, compared to the developing ones, diet remains a reason for the rise in prevalence of non-communicable diseases.
 - a. Developed countries: The surge in the availability of food, which is a solution to what was once the cause of mortality, has also contributed to the increased calorie consumptions per individual per meal. In addition, technological advancement has given rise to genetically modified foods which are subject to the debate as to whether they provide the essential nutrition required for survival as opposed to increasing the risk of gene mutation and cancer susceptibility. The westernized diet is highly rich in fats, cured salts and preservatives and lower in fiber due to its highly processed nature. All these, to mention a few, predispose to cancers as well as increasing risk of cardiovascular disease and diabetes.
 - b. Developing countries: on the opposite end of the spectrum lies famine, terrorism, war and high infection risk, predisposing the population of developing countries to malnutrition and disease because of contaminated food and water.
3. Reduced physical activity ^[3]: Gone are the days of the Spartans when it came as innate nature to stay active as part of daily living. Again, our friend technology has provided us with machinery, fast cars, and computers. When the option of sitting at home to order groceries is posed, or a warm car is available on a cold winter morning, who can pass the offer for a fifteen-minute trek in the cold? These new adaptations to our society have indeed made life easier, but with a mortality of 3.2 million a year, is that a cost we should be willing to pay ^[2]?
4. Harmful alcohol intake: Over 50% of the deaths from non-communicable diseases are attributable to toxic alcohol consumption ^[2]. Some call it peer pressure. Others may be trying to mask depression. Whatever the reason, we cannot deny its increased consumption. So important is its role in social gatherings today, that it may even be considered odd not to engage in its consumption or rude not to offer it at dinner parties. In as much as a little drink every now and again does not hurt, we must be aware that what usually starts out as a little drink could rapidly change into a harmful coping mechanism. And then the cardiovascular, metabolic and neurological complications occur. Families are broken and mental health is destabilized.

We have explored threats relating to physical and mental health. Others which may not come readily to mind are those of the economy and geopolitical state. How can we tackle this obvious global challenge?

Interventions

Many would think this to just be common sense. After all, we have identified the problem, surely solving it would only involve removing the risk factors posed. The unfortunate situation remains that although awareness of risk factors has been around for years, the

rapid growth of these non-communicable diseases has not yet stalled. Why? We shall first explore some of the interventions available:

- Smoking cessation: in addition to cigarette taxes and messages in the media, it is now the family doctor's responsibility to ask his patient if he smokes and to offer smoking cessation advice as needed. Patches, tablets, chewing gums ^[6] and even electronic cigarettes (of whom we are yet to fully appreciate its potential risks) are all up for grabs as measures to curtail this harmful habit.
- There is increased education in various settings about food and healthy eating. Schemes such as Healthy Start, Couch to 5K and Sugar Smart have been offered by the NHS and other organisations in a bid to build a healthier nation.
- Improved health care: Great improvements in public health in the western world include the availability of early screening programmes for non-communicable diseases and increased availability of vaccines, which have both been shown to reduce mortality ^[7,8]. In our celebration, we must not forget the need for these health services to developing countries. The Package of Essential Non-communicable (PEN) Disease Interventions for Primary Health Care ^[9] and implementation of palliative care services ^[10] are amongst the interventions stemming from the World Health Organisation for this purpose.

The examples above clearly encompass detection, screening and intervention ^[10] as action routes for us clinicians. Could our desire partly be a political issue rather than an individual one, due to the annual QOF targets ^[11]?

So again, why the rapid rise in non-communicable diseases in the 21st century despite these measures? For one, there are the familial and social health determinants factors which we lack control of. Another reason is that despite our best intentions for our patients, we cannot take away the autonomy of an individual with full capacity ^[12]. One only has to look at a pack of cigarettes to see that "...smokers are liable to die young.", yet the cigarette producing industry is still very much in business and the incidence of lung cancer is on the rise ^[13]. As part of education and making informed decisions, food producers now declare the ingredients in their produce as well as nutritional facts. Regardless, every Christmas season, the sale of mince pies and alcohol increases alongside with our waistlines. Conscious decisions are made each day to proceed with harmful habits despite knowledge of their detrimental effects.

Conclusion

Of course, eating whole grains, fruit and vegetables is more expensive than reaching for a bag of crisps. Have we shown that we understand this to that social class IV patient with hypertension? Perhaps telling that lady with end-stage cirrhosis that we know that alcohol is indeed a short-term aid for underlying mood disturbances which does not take the problem away, would hit home quicker than reading out the development of hepatocellular carcinoma and encephalopathy. We must remember not to treat the disease, but the individual patient ^[14-15].

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The way forward

There are nine targets ^[16] set by WHO to address these diseases on a global level, one of which is to reduce attributed deaths by a quarter by 2035 ^[10]. While we strive to implement measures to protect ourselves, our patients and our world from non-communicable diseases, we must not lose sight of the person behind the label.

I believe that the answer to one of the biggest global health issues lies outside of basic science. It is called being human.

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