Vulnerability to disease: Look to the future

COVID-19 is continuing to take its toll, with the expected second peak across Europe and in parts of the USA now well established and concentrating the minds of politicians around restrictive measures in an effort to control what is seen as the inevitable toll of illness and death that will result. However, for a virus that was unknown to science until roughly 10 months ago, we have learnt a lot about SARS-CoV-2. Pure observation shows that the virus is particularly deadly in the elderly and in those, even in younger age groups, who have at least one associated comorbidity. The comorbidities that crop up most frequently as indicators of risk are type 2 diabetes and hypertension. Obesity has also been shown to be a major independent risk factor, and of course predisposes to other comorbidities. I have, cynically, often wondered that if the virus had arisen somewhere in Africa, like Ebola, and not had such a devastating effect on Western populations, the global response would have been as extreme as it is. And it would appear that there are good underlying reasons for the concentration of adverse effects in many Western countries, quite apart from the obvious factor of ageing populations. The Global Burden of Disease, Injuries and Risk Factors Study (GBD) 2019 has just been published in the *Lancet*[1] and, in the words of a *Guardian Online*[2] article, shows that 'The failure of governments to tackle a three-decade rise in preventable diseases such as obesity and type 2 diabetes has fuelled the COVID-19 pandemic and is stalling life expectancy around the world …'. Indeed, the editor of the *Lancet*, Richard Horton, goes so far as to say that COVID-19 is not a single pandemic, but 'a synthesis of a coronavirus and an epidemic of non-communicable diseases on a background of poverty and inequality'.

The *Guardian Online* article pulls out selected countries in Western Europe, showing that the UK in particular not only has a lower overall life expectancy than countries such as Iceland, Switzerland, Italy and Norway, but also has a healthy life expectancy of only 68.9 years – a good way behind the other countries selected. This gap, suggesting, even in those countries with better metrics than the UK, at least 10 years of poor-quality life before death, is pretty damning in itself. But that is for another day.

The upshot of the GBD study is that more people worldwide are experiencing high blood pressure and diabetes, and are overweight or obese. There is also a rising tide of cardiovascular disease, particularly in the USA and the Caribbean. And if you look at the countries in the developing world most affected by COVID-19, they are in South and Central America and in Africa, where the major burdens are in South Africa (SA), Algeria and Egypt. Given the striking variation in morbidity and mortality apparent between younger and older age groups, these three African countries might be expected to be more severely affected by COVID-19. The proportion of the population aged >65 in South Africa is 5.4%, in Algeria it is 7% and in Egypt it is 5%.[3] However, there are multifactorial risk factors associated with poor outcomes in COVID-19, and age is only one of them. While it is undeniable that communicable diseases such as tuberculosis and HIV still account for a very high proportion of deaths and disability in SA, along with trauma, our burden of non-communicable diseases is undoubtedly also rising. Indeed, Bradshaw *et al.*[4] show that in the period 1985 - 2012, non-communicable diseases accounted for high proportions of deaths in whites and Indians/Asians. Although the proportion of deaths from non-communicable diseases in black Africans was arrested by the HIV/AIDS epidemic, the proportion started to increase again from 2005, leading to our so-called quadruple burden of disease.

It is too soon to start to draw definitive conclusions about why SA has dominated the numbers across Africa, lack of data elsewhere because of lack of testing and questionable record-keeping aside. However, I remember watching the pandemic unfolding in Europe and then in the USA before it hit Africa and thinking that because of our more westernised conditions in SA, we were likely to have a bad time of it. Add the burden of poverty and one of the most unequal societies in the world, and what has happened here is far from surprising. This virus has torn aside any hopes we might have continued to harbour of firm infrastructure and economic resilience and highlighted our acute vulnerability to such major shocks. It is only the competence, dedication and sheer brilliance of our medical community, doctors and nurses, that prevented us from seeing the kinds of sights that greeted the people of New York and northern Italy early in the pandemic. We now need to use these lessons to tackle all areas of vulnerability, disease specific and socioeconomic, and take something positive out of what has been a devastating year for many.

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