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ADJUSTING OUR PERCEPTION OF ‘GERMS’

From an early age most of us are taught that microbes are bad and that we need to avoid them wherever possible. For clinicians, there is further reinforcement of this concept, from the threat of the relatively few serious diseases which microbes can cause to the possibility of disfiguring, even lethal conditions. It is easy to understand the extent to which medical microorganisms have had their lives saved by antibiotics. However, antibiotics are not the be-all-and-end-all of medicine, and there is a growing awareness that they may have concomitant detrimental effects that can be reaped from wise manipulation and ‘fine tuning’ of the microbiota rather than its destruction.

CONSEQUENCES OF COLLATERAL DAMAGE IN ANTIMICROBIAL THERAPY

Antimicrobials, and in particular those that are broad-spectrum in nature, are never simply targeted towards pathogens; in the battlefield of infection these drugs inflict heavy collateral damage on the indigenous microbiota. Fortunately, the microecology of the healthy human microbiota is highly diverse and carries ‘functional redundancy’, the capacity for multiple microbes within the same ecosystem to carry out the same tasks. Consequently, it has a moderate ability to withstand antibiotic-induced stress and to recover from it. However, because we all have a microbiota that is uniquely shaped by our environment and by other factors that are less well understood, this exclusivity means that it is not yet possible to predict individual responses to antimicrobial exposure. Furthermore, evidence indicates that disturbance of our microbiota can cause disorders that are not amenable to alleviation by treatment with antibiotics alone, and thus the treatment of less serious disease, from mild infections to ‘germs’

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It’s time to shift emphasis from the common perception that ‘the only good germ is a dead germ’.

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