

Abstract

Personalised Medicine – The Right Drug, for the Right Person, at the Right Time

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Many medicines do not work equally well in the total patient population for a given indication. Modern genomic science suggests that this may be a result of variation in specific drug targets where single nucleotide polymorphisms may change responsiveness. In addition, the ability of any species to handle xenobiotics has a genetic basis, which can be described, and response patterns to specific medicines can be predicted although not always totally. Our knowledge of drug metabolizing pathways is increasing exponentially as are the analytical tests to allow its transfer into clinical benefit.

New drug discovery continues to be a low success high-risk business and the current wave of corporate mergers and acquisitions attempts to provide time for pipelines to improve and also to cut costs in case they don't. Over the next decade the rational use of pharmacogenetic information is likely to extend product life of a number of both classes and individual medicines and will be far more achievable than new medicines deriving from novel genetic targets in the short term.

Exploitation of this new aspect of innovation will involve substantial cross discipline working within the industry and with health care professionals. Clinicians assess the response of patient populations with the pharmacoepidemiologists, drug safety is the domain of adverse event teams, pharmacokineticists and preclinical drug metabolism and disposition experts whilst the discovery scientists view the genome as their specialism.

What does all this new science and its application mean for the patient?

It is likely that one of the earliest events will be provision of diagnostic services at Point of Care sites with the attendant need for professional counseling. It will run in parallel with the use of web based information before and after consultation, diagnostic procedure, prescribing and counseling which has already generated the need to use the science base available to pharmacists in all practice settings. Pharmacy has a major opportunity as its practitioners are the medicine professionals, they are the Scientists in the High Street and they have the professional training to act as the interface for these major therapeutic advances.

Examples in specific therapy areas will demonstrate the wide potential for future innovation in the context of real rather than hyped time frames.