Letters to the Editor

Drugs and genetics

I read with interest two excellent articles in the June 2017 issue. One described the main pharmacogenomic tests available in Australia and their relevance to clinical practice.[1] The other highlighted concerns with direct-to-consumer genetic testing, particularly the over-enthusiastic promotion and difficulties in actioning test results.[2]

Understanding why a patient has a specific response to a medicine is complex and dependent on the dynamic interplay of many intrinsic and extrinsic factors. To consider pharmacogenomics in isolation is like reading one section of a book and expecting to know the story. Very rarely, the critical part is read and the story recounted well. This is analogous to the avoidance of abacavir hypersensitivity with HLA-B*5701 testing[1] or cures with targeted pharmacotherapy in oncology.[3] Mostly, pieces of valuable information are cobbled together, blanks are filled in based on assumptions, and a good story is told to an interested listener. However, then the story becomes equivocal with pressure testing. This is comparable to mainstreaming of 'precision medicine', the over-enthusiastic promotion of direct-to-consumer genetic testing, and the fights between pharmacogenomic and medical experts about clinical value and implementation.

For those expecting a simple answer to the complexity of predicting a patient's response to treatment, pharmacogenomics has failed. For those who are realistic about its limitations, pharmacogenomics is just one of several components required for more advanced approaches that predict medication response, such as quantitative systems pharmacology[4] and physiologically based pharmacokinetics and dynamics.[5]

As well as improved pharmacogenomics education, skills in assessing the clinical relevance of variability in drug action more broadly are also needed among clinicians. Otherwise, innovative technologies claiming to improve prescribing in the future will not receive the thorough evaluation necessary to protect patients, their health and their hip pockets.

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