Genetic variants may affect responses to drugs, diseases

By Joyce Tan

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As a recent puzzle-ridden trial of a new anti-cancer drug neurotransmitter in Singapore University Hospital (NUH), a physician treating a patient with metastatic breast cancer said that his patient’s genetics had made him less likely to respond to the drug.

This is because the man had a genetic variant in the drug’s target molecule that prevents the drug from blocking it.

The trial is one of several initiatives in Singapore to study how genetic variants might affect response to different drugs.

One such trial is launched by the National University of Singapore’s National Precision Medicine Programme, which allows doctors and patients to participate in genetic research.

The programme, led by Dr. Lim, is collaborating with the Singapore National Genomic Medicine Programme to study how genetic variants might affect response to different drugs.

In Singapore, the National Centre for Genomic Medicine Programme (NC-GMP) is collaborating with the Singapore General Hospital to study genetic variants in patients with drug-resistant infections.

The programme aims to identify genetic variants that might affect response to different drugs and develop treatments that target these variants.

One of the benefits of this approach is that it allows for faster development of new drugs and treatments.

For example, a recent study published in the journal *Nature Medicine* showed that a genetic variant in the gene *PDGFRA* is associated with resistance to the drug *Sunitinib*.

This genetic variant was found in 20% of patients with metastatic renal cell carcinoma, and the study showed that patients with this variant had a significantly lower response to *Sunitinib* than those without the variant.

The study also showed that patients with the variant had a shorter overall survival time than those without the variant.

In addition, the study showed that a new drug, *T巡*, which targets the gene *PDGFRA*, was effective in treating patients with the variant.

The results of this study suggest that genetic testing and personalized treatment could be used to improve outcomes for patients with metastatic renal cell carcinoma.

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