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How personalized medicine and personalized monitoring using non-invasive method could improve treatment for breast cancer

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Statement of the Problem: Breast cancer (BC) is the most common cancer amongst women in Europe, with one out of eight developing this disease during her lifetime. In the last few decades, surgical excision followed by adjuvant radiotherapy, sentinel lymph node dissection, and adjuvant systemic therapy in the form of chemotherapy, hormonal therapy and Trastuzumab have improved the quality of life and long-term survival of women diagnosed with early disease. However, BC remains the leading cause of female cancer-related death worldwide. Thanks to the NGS and other tests (like IHCs, methylation), it is now possible to perform a profiling of the tumor to identify either treatments that might be associated with some clinical benefit or resistance to approved treatment.

Methodology: Biopsies of women affected by different breast cancer type have been analysed by sequencing and some specific tests (methylation, IHCs).

Findings: Overall, the NGS provided the oncologist with no use in 50% to 90% of the cases whereas the IHCs/specific tests increase this number by a factor 2 with the caviar of the combination of both. These results were prospectively compared to the decision of the oncologists in an automated way. 23.2% of the patients passed away before the oncologist's decision. Among the 76.8% remaining, 59.7% followed our recommendations, 27.5% didn't and 3.1% went against. Only in 6.6% of the cases, the decision was taken according to the NGS only, and 95.4% remaining concerned chemotherapies only. And in 100% of the cases, the treatment chosen was either a drug approved for the cancer type analysed or approved for another cancer type. None of the drugs in development in clinical trial was chosen and only 1% went into a clinical trial.

Conclusion & Significance: This study demonstrated how simple strategies based on the NGS only have a limited impact on the oncologist's final decision confronted to the reality where only chemotherapies are available in their countries and clinical trials are either not recruiting or really difficult to get into.

Biography

Fu Zhuo-Han Marc : After a Master in biomedical engineering at UCL. He is currently Business Developer at OncoDNA. It is an exciting challenge to combine scientific and sales knowledge to further develop OncoDNA's activities in South East Asian Regions.

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