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Are urinary biomarkers from clinical studies biomarkers of disease or biomarkers of medicine?

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Urine proteome was changed by different diuretics, anticoagulants. Other medications may cause changes in urine too. When clinical biomarker studies were designed, sex, age, disease stages, complications were usually taken into consideration. But different medicines taken by the patients were usually not. If this difference can be balanced off later in the study, it may not be a problem at all. But what if the disease is strongly associated with a particular medication, and healthy control is strongly associated with no medication, the result of the study may reveal the difference of the medicine instead of the disease. And the effects of disease and medicine can never be separated in the study. Normally and ethically, we can never stop medicine for the patients; we can never give the healthy volunteers, medicines they do not need, just for the sake of biomarker study. So the patients-medicine, healthy-no medicine associations exist in all of clinical biomarker studies. It is devastating for the field. Clinical biomarker studies are not cheap. We now have to reevaluate the candidate biomarkers proposed from most of early biomarker studies. We have to rule out the effect of the medicine. This becomes so urgent; it becomes part of the foundation of urinary biomarker study. This is why the author cannot wait to propose the pharmuromics (pharm-uro-mics) which studies the effect of the medicine on urine. The other parts can probably be named physiouromics, pathouromics which are the effect of a physiological or pathological process on urine.

Biography

Youhe Gao is a Professor, Beijing Normal University. He received his MD from Peking Union Medical College, his PhD from University of Connecticut and Post-doctoral training from Beth Israel Deaconess Medical Center Harvard Medical School. He was the Professor of Department of Pathophysiology, Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences/ Peking Union Medical College from 2001-2014. His research interests include biomarker discovery in urine proteome, protein interaction and related bioinformatics.

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