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Steroid analysis in LCMS/MS era and the paradigm shift in clinical laboratories**Reena Desai**

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The accurate measurements of steroids have been a pivot to many clinical laboratories for better patient care in endocrinology, metabolic disorder, reproductive health and sports doping. Most commonly used immunoassays have their limitations in specificity and sensitivity, this has led to the popularity and need to develop steroid assays by LCMS/MS. Currently, many laboratories have adopted this technique and much more to follow the trend, but analyzing steroids by LCMS/MS has set of challenges making it very difficult. Our laboratory has developed various multi-analyte methods for steroid analysis casing its metabolism pathway in a single run without any derivatization and making use of the Atmospheric Pressure Photo-Ionization source (APPI) as part of our routine assays. Not only does the availability of MS-based steroid assays resolve the problems of direct steroid immunoassays, but multi-analyte profiling also ushers in a new era of snapshot profiling of the overlooked importance of steroid pathway fluxes that will broaden the interpretation of clinical studies beyond the standard restricted single analyte-by-analyte analysis. We have methods for serum, urine and dried blood spot detecting steroids of interest by LCMS/MS in human and mice samples which helps better understanding for research and clinical trials. It is time that clinical research and practice operates under equally high standards that have now become feasible. Ultimately, the need for the highest standards in clinical research and practice will drive us to this paradigm shift.

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