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Novel TSH assays display positive correlation with symptoms of primary hypothyroidism in adult, elderly subjects and T4 treated patients

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Most current assays fail to accurately measure TSH level in the upper range and more than often, TSH level does not correlate with clinical signs of hypothyroidism. To achieve a better assessment of TSH level, we developed new assays targeting sialylated TSH known to increase with primary hypothyroidism. We engineered a recombinant TSH calibrator mimicking highly sialylated TSH circulating in primary hypothyroid patients and screened antibodies accordingly to construct new assays. All assays showed harmonized TSH measurements in a cohort of 84 patients aged 18-85 with TSH 2.1-22.4 mIU/L (Eur.J. Thyroid 2017).

Clinical validation of 4 of these new assays was carried out on a cohort of 1363 patients (18-85 y)

with TSH between 0.1-63mIU/L without TRAK or anti-TPO antibodies. FT3, FT4 and 11 clinical

signs of hypothyroidism were also recorded. New assays showed a positive correlation between TSH level and clinical signs in 797 healthy subjects according to gender (M/F) and age (<60y and >60y). In the elderly, no correlation between TSH level and clinical signs was observed with commercial IRMA used as reference assay while a positive correlation was found in adult and old females, indicating a better assessment of TSH level. Moreover, in a cohort of 253 patients under T4 treatment, 26.3% of the patients did not present normal TSH values in contrast to the reference assay. 5 major hypothyroid signs were found to be reduced by T4 treatment and 3 adverse effects were increased in patients with apparently normalized TSH. TSH new assays may therefore serve as a therapy test to identify subclinical hypothyroidism, initiate and adjust hormonal treatment.

Biography

Catherine Ronin carried out a full academic career as Professor at Aix-Marseille University (France) and founded SiaMed'Xpress in 2010. She has published more than 35 papers related to TSH biological and immunological polymorphism in reputed journals and has been serving as expert, Vice Chair and Chair in Marie Curie ITN and JDP programs at the European, Research Agency over 12 years..