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Carbohydrate-deficient transferrin and anorexia nervosa – Author’s reply

Sir,

With great interest we have read the comment on our article (Reif et al., 2005) by Drs. Arndt and Keller. They suggest that our findings on elevated CDT levels in the presence of catabolic disease states (Reif et al., 2001), especially anorexia nervosa (Reif et al., 2005), might be due to methodological but not pathophysiological reasons and ask us to report details on the methods used in our study. We thank the authors for their suggestions, which are of great value in the interpretation of pathological CDT test results.

As mentioned in our report, our study design partially was retrospective, in that we also assessed the longitudinal course of CDT levels. In several cases, initial CDT values were gathered from chart reports. In 1999, there was a switch in our laboratory from the CDTest-EIA® test to the %CDT-TIA® test kit, and CDT results were no longer comparable, e.g. in longitudinal control. To achieve minimum comparability, we reported CDT values in % of the test-specific upper cut-off values given by the manufacturers of the test kits (but not as absolute or relative CDT values). The CDTest-EIA® test (Pharmacia) was based on in vitro transferrin iron saturation, anion-exchange microcolumn CDT and non-CDT separation and detection of CDT isoforms in the eluate by an enzyme-linked immunoassay. The upper cut-off value was 20 U/l for this method. The %CDT-TIA® (Bio-Rad, originally developed by Axis) is based on in vitro transferrin iron saturation, anion-exchange microcolumn CDT and non-CDT separation and detection of CDT isoforms in the eluate by turbidimetric immunoassay. The upper cut-off was 6% CDT. The most important difference between the two tests is that %CDT-TIA® included ca. 50% of trisialo-Fe₂-transferrin into CDT, and CDTest-EIA® detects only traces of this non-CDT isoform. As pointed out by Arndt (2001), this complicates the comparability between CDT results obtained by these two test kits. Nevertheless, only one patient (patient no. 8 in Table 1; Reif et al., 2005) has been investigated with both methods, and both tests yielded elevated CDT values in anorexia nervosa: 5 out of 10 patients investigated with CDTest-EIA® had elevated CDT values, and 5 out of 13 patients had an increased CDT by the %CDT-TIA® test. Thus, the switch in the test method cannot solely account for our findings of elevated CDT levels in anorexia nervosa patients. However, as Arndt and colleagues pointed out for other pathological conditions like primary biliary cirrhosis (long viewed as an important cause of false-positive CDT results; Arndt et al., in press-a) and argininosuccinate lyase deficiency (Arndt et al., in press-b), microcolumn CDT and non-CDT fractionation followed by an immunoassay using transferrin but not CDT antibodies might yield false-positive results with the need for confirmatory CDT analysis by independent analysis principles, e.g. HPLC or capillary electrophoresis. We therefore suggest to conduct a larger case-controlled study on catabolic patients, esp. patients with anorexia nervosa, considering the concept of screening and confirmatory CDT analysis as discussed earlier (Arndt et al., in press-b). Our findings still convey an indicator for the clinician, in that elevated CDT concentrations in anorexia nervosa (as in every case) should be evaluated by a confirmatory test to rule out a spurious result. These issues again call for a standardization of CDT analysis as recommended earlier (Arndt, 2001; Arndt and Keller, 2004).

References


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