Assessment of macroprolactin after polyethylene glycol precipitation in two commercial immunoassays

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ABSTRACT

Hyperprolactinemia leads to several diagnoses, however, the immunoassay used for the prolactin determination and the presence of macroprolactin, could induce a misdiagnosis. The aim of this study was to evaluate the usefulness of separation and detection of macroprolactin by precipitation with polyethylene glycol, using two commercial immunoassays, Axsym Abbott and Advia Centaur Bayer in patients with established diagnosis of hyperprolactinemia. One hundred and seventeen samples were tested. Samples were obtained from female patients aged between 22 to 59 years old. We determined total prolactin (PRL), macroprolactin and free prolactin. In 30 of these samples hyperprolactinemia was detected. PRL recovering percentages of supernatant fraction were from 6.5% to 78.5% and from 26.2% to 75.4% when we compared Advia to Axsym systems initial values, respectively. Based on the PRL recovering percentage, 7 samples with significant macro-PRL presence were observed. The macroprolactin prevalence in these 30 samples, after PEG precipitation, was of 23% and 10% in the Axsym and Advia system respectively. Based upon these findings, we establish that references values need to be determined for both instruments, having applied the polyethylene glycol precipitation for the prolactine determination.

Key words: Polyethylene glycol, immunoassays, macroprolactin, hyperprolactinemia.