

**APPLICATION OF POLYETHYLENE GLYCOL
PRECIPITATION METHOD FOR THE DETECTION OF
MACROPROLACTINAEMIA AS A COST EFFECTIVE
METHOD IN SRI LANKA**

R.M.L.P. Thilakarathna

Department of Chemistry

University of Peradeniya

Peradeniya

Sri Lanka

An inert high-molecular-mass form of prolactin (macroprolactin) is an important source of a positive interference to the immunoassay of prolactin, leading to misdiagnosis as hyperprolactinaemia with resultant mismanagement.

This study was designed to study the validity of polyethylene glycol (PEG) precipitation as a screening method for macroprolactinaemia, to establish validated reference intervals for post-PEG-treatment monomeric prolactin, to assess the prevalence of macroprolactinaemia in hyperprolactinaemic subjects and study their age-specific distribution.

110 samples with normal prolactin levels were analysed to derive the parametric reference interval and cut-off level for post-PEG-treatment monomeric prolactin. Of 123 hyperprolactinaemic samples were analyzed using the PEG method to differentiate macroprolactinaemia from true hyperprolactinaemia.

110 individuals with normal prolactin levels ranging from 91 – 483 mIU/L, became 83 – 515 mIU/L after PEG-treatment. Of 123 hyperprolactinaemic sera identified from 1,266 routine samples, 18 (15%) normalised and lay below the 50% cut-off level for recovery, following treatment with PEG, thus accounting for macroprolactinaemia.

PEG treatment decreased the mean (SD) prolactin from 1278 (732) mIU/L to 323 (145) mIU/L in macroprolactinaemic samples, but decreased it only from 1418 (1019) to 1410 (1055) in true hyperprolactinaemic patients ($p < 0.01$ between groups)

Routine screening of all hyperprolactinaemic sera for macroprolactin is recommended for avoiding misdiagnosis, unnecessary investigation, and inappropriate treatment. PEG method allows easy identification of macroprolactinaemia in routine clinical practice in a cost-effective manner. The use of an appropriate reference interval along with a cut-off level for the PEG-precipitation procedure is required for correct identification of macroprolactinaemia from true hyperprolactinaemia.

