

Prolactin, bilirubin and bile acid concentrations in breast cyst fluid

S Sikri¹, I Szamel², MW Ghilchik³ & DC Parish¹

¹Endocrinology and Metabolic Medicine, Imperial College of Science Technology and Medicine, London, UK; ²National Institute of Oncology, Budapest, Hungary; ³The Breast Clinic, St Mary's Hospital, London, UK.

Gross cystic disease of the breast is a condition afflicting 7% of western women and confers an increased risk of developing breast cancer. Biochemical analyses of breast cyst fluid (BCF) have allowed the identification of various components of BCF and the classification of breast cysts into type I and II cysts. Gross cystic disease fluid proteins (GCDFP) are a family of proteins found in BCF and include albumin, apolipoprotein D and prolactin inducible protein (PIP). It is proposed that these GCDFPs play a role in the accumulation of various compounds in BCF and this study investigated the levels of prolactin, bilirubin and bile acids in BCF and correlated these concentrations to the levels of GCDFPs in the same samples.

Analyses were carried out on 63 breast cyst fluid samples obtained, with consent, from 49 women. Bilirubin and bile acid concentrations were determined using enzyme linked colorimetric assays while prolactin levels were measured using an ELISA. While bilirubin and prolactin concentrations in BCF were found to be similar to serum levels, bile acids concentrations were up to 22 times normal serum levels. There was no significant difference found in the levels of bilirubin, bile acid and prolactin in type I and II cysts. There was also no significant correlation between the concentrations of these compounds and GCDFP levels. It is, therefore, suggested that bilirubin and bile acids accumulate in BCF by a mechanism other than being bound to GCDFPs and that PIP expression in BCF is due to stimulation by factors other than prolactin (e.g. interleukins). Finally, since there is some evidence suggesting a carcinogenic role for both bile acids and prolactin, it is possible that BCF components might play a role in breast cancer pathogenesis.

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140 Oxford Street East, Suite 309 London, ON - N6A 5R9 - 519-667-0666 - tcl@bellnet.ca