**PSEUDOHYPONATREMIA CAUSED BY LIPOPROTEIN X IN OBSTRUCTIVE BILIARY CHOLESTASIS SECONDARY TO PANCREATIC CANCER**

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*Background*: Lipoprotein X (Lp-X) is an abnormal lipoprotein that is frequently found in liver disease and regarded as the most sensitive and specific biochemical marker for the diagnosis of intra- and extrahepatic cholestasis. In cholestasis, bile lipoprotein, a precursor of Lp-X, refluxes into the plasma and binds to albumin to form Lp-X. LP-X contributes to the development of hypercholesterolemia in obstructive jaundice secondary to a failure of feedback inhibition. The presence of very high levels of Lp-X has been shown to be a rare cause of pseudohyponatremia.

*Case Presentation*: We report the case of a 71 year old male who presented to the hospital with 2 weeks duration of abdominal pain and jaundice. CT scan of the abdomen revealed a pancreatic head tumor with diffuse biliary and ductal dilatation. Initial blood work revealed severe hyponatremia (118 mmol/L; normal range: 135-145 mmol/L), marked elevation in liver enzymes with a total bilirubin of 25.4 mg/dl, AST of 1138 U/L, and ALT of 787 U/L. He was ultimately found to have a total serum cholesterol level of 1157 mg/dL (normal range: 120-199 mg/dL) — secondary to accumulation of lipoprotein-X—causing pseudohyponatremia. The diagnosis was confirmed by measurement of serum osmolality (292 mOsm/kg H2O; normal range: 270-300 mOsm/kg H2O) and serum sodium by direct potentiometry (140 mmol/L). Following biliary stent placement and relief of the obstruction, the patient’s lipid levels markedly improved. His sodium levels also normalized as measured by indirect potentiometry.

*Conclusion*: This case demonstrates that extreme hypercholesterolemia from elevation of lipoprotein-X particles in cholestasis can be a rare cause of pseudohyponatremia. It highlights the importance of measuring serum sodium with direct potentiometry in the setting of extreme hypercholesterolemia prior to initiating treatment. Assays that utilize direct ion-selective electrodes are not affected by the interference of high concentrations of lipids and thus are useful in situations where such interference is suspected.