

Follicle-Stimulating Hormone influences biliary epithelium growth in Autosomal Dominant Polycystic Kidney Disease

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Autosomal Dominant Polycystic Kidney Disease (ADPKD) is a genetic disorder characterized by the development of renal cysts and various extrarenal manifestations, such as hepatic cysts that bud from biliary epithelium (Alvaro et al., 2008; Onori et al., 2010). We previously showed that Follicle-Stimulating Hormone (FSH) is a trophic factor for the biliary cells in normal rat and in experimental model of bile duct ligation. (Mancinelli et al, 2009). From these data, we aimed to investigate the role of FSH on biliary epithelium in ADPKD. In vivo evaluation of FSH receptor, FSH, p-ERK and c-myc expression in liver fragments from normal and ADPKD patients and in vitro PCNA and cAMP levels in normal human cholangiocytes (H69) and in a cell line obtained from the epithelium lining the hepatic cysts (LCDE) was performed. We found that FSH induces the proliferation of the cystic epithelium and co-localize with p-ERK and c-myc, proteins activated in cAMP signalling mechanism. In vitro FSH sustains cellular growth by the activation of cAMP/ERK signalling pathway with or without the transient silencing of the FSH gene in LCDE by siRNA. These results indicate that FSH has an important role in cystic growth via the cAMP pathway. FSH candidates as a possible target for medical therapy of hepatic cysts during ADPKD.

References

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