Is Ultrasonography Of Salivary Gland a Validate Tool In Sjögren Syndrome? Study 1: Interobserver Reliability Between International Group Of Experts

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Description:
Background/Purpose:

Ultrasonography (US) of salivary glands is a relatively new test to diagnose primary Sjögren syndrome (pSS)[1-6]. In 2012, an international group of interest was formed to address the metric qualities of US as a potential outcome measure. A preliminary systematic review highlighted the deficiencies in the literature, particularly with regard to the reliability of interpreting and acquiring images and to delineate which abnormalities should be scored. The purpose of this study group is to improve reliability and to evaluate several US abnormalities in salivary gland according to the diagnosis or not of primary Sjögren syndrome (pSS).

Methods:

We report here the first part of the study by the group that was conducted between November 2012 and june 2013 with an international group of 12 experts in ultrasonography of the salivary gland in pSS and aims were 2-fold: first to assess the interobserver reliability among experts and second to better define salivary gland abnormalities. 28 scanned imaged of parotid gland in longitudinal and transverse plans were scoredwithout preliminary training but based on experts experienced concerning salivary gland in pSS. US-GS scoring was evaluated using a 4-grade scale derived from De Vita, with the following subjective definitions for each category of homogenicity of the parenchyma: grade 0 = normal gland ; grade 1:small hypoechogenic areas without echogenic bands; grade 2: multiple hypoechogenic areas measuring <2 mm with echogenic bands; grade 3, multiple hypoechogenic areas measuring 2-6 mm with hyperechogenic bands; and grade 4, multiple hypoechogenic areas measuring >6 mm. And for two grades concerning echogenicity of the parenchyma: normal or decreased. PD was not yet used for this first step. Interobserver agreement was estimated using the kappa index.

Results:

Concerning hypoechogenicity the mean kappa was low: 0.3 (0.12-0.8). For homogenicity the mean kappa were respectively:0.6 (range:0.4-0.8) ; 0.4 (range: -0.1-0.7) and 0.6 (range: 0.5-0.9) for grade 1, 2 and 3. The low agreement for homogenicity could be due to the absence of reference to normal parenchyma scanned image of the thyroid gland used as reference or to the absence of well defined consensus. In the absence of previous training session a relative good agreement was found between ultrasonographers. Grade 3 is related to the diagnosis of pSS. New definition of each abnormality was elaborated by the experts.

Conclusion:

In the absence of well defined consensus, ultrasonography has an acceptable agreement for homogenicity of the parenchyma but not for echogenicity. Diagnosis based on grade 3 is reliable between observers. Training sessions are required and further studies will assess the scoring system and the value of US in clinical trials fro pSS.