Objectives

Non-alcoholic fatty liver disease (NAFLD) has become a pandemic. There are no simple, safe and economically effective methods for screening of liver steatosis. Population ultrasound (pop-US) studies should include screening and early diagnosis of NAFLD [1]. This will effectively overcome hepatic steatosis without medication in accordance EASL [2].The aim was to evaluate the possibilities of organizing and performing population US steatometry by attenuation coefficient measurement (ACM) for NAFLD screening.

Materials

2 populations were examined by the ACM (dB/cm). Group 1 - 7318 patients aged 18 to 82 years (2944 men and 4374 women, average age - 42.52 ± 15.62 years). Group 2 - 105 patients with type 2 diabetes mellitus (24 men and 81 women, age - 57.75 ± 8.60 years, duration of diabetes - 10.19 ± 5.99 years). B-mode and ACM were performed on US systems Soneus P7, weight 13 kg (Ultrasign, Ukraine) by a C1-5 MHz convex probe. The training of 5 doctors on mastering the ACM was only 30 minutes due to the simple and intuitive navigation of the ROI by the profilogram of attenuation on a handmade US steatophantom [3]. Stratification of hepatic steatosis was performed by a scale Sasso M. et al. (2011): S0 < 2,22 dB/cm, S I ≥ 2,22 dB/cm, S II ≥ 2,33 dB/cm, SIII ≥ 2,90 dB/cm [4].

Results

In group 1 according to B-mode, there were revealed of steatosis in 1317 individuals (18.00%): mild in 302 (22.93%), moderate - 893 (67.81%), severe - 122 (9.26%). According to ACM in 1819 individuals steatosis was detected (18.86%): mild S1 in 962 (52.89%), moderate S2 - 637 (35.02%), severe S3 - 220 (12.09%). Group 2 revealed patients with S0 - 9 (8.6%), S 1 - 4 (3.8%), S2 - 73 (69.5%), S3 - 19 (18.1%). High prevalence of NAFLD in different populations was revealed [5].

Conclusions

1. Population US (pop-US) by ACM can be easily performed with the goal of screening and early diagnosis of NAFLD. 2. Pop-US of NAFLD must be performing on a US mobile device.3. The universal screening by pop-US ACM is appropriate for management of NAFLD.

Keywords

population ultrasound

liver steatometry

attenuation coefficient measurement

non-alcoholic fatty liver disease