

**Liver fibrosis index and diabetic peripheral neuropathy in type 2 diabetes: evidence by a large cross-sectional study**

**Aim:** Aspartate aminotransferase/alanine aminotransferase ratio (AAR) is considered a predictor of type 2 diabetes mellitus (T2DM) and cardiovascular disease, while limited research evaluated the association between AAR and diabetic microvascular complications. This study aimed to investigate the association of AAR with diabetic peripheral neuropathy (DPN).

**Methods:** 1562 Chinese participants with T2DM (774 men; age 59.74 years; diabetes duration 7.55 years) were divided into DPN (DPN<sup>+</sup>) and no DPN (DPN<sup>-</sup>) groups according to vibration perception threshold (VPT)  $\geq 25$  V and/or inability to feel the monofilament. Non-alcoholic fatty liver disease (NAFLD) diagnosis was based on the detection of steatosis by abdominal ultrasound after exclusion of other causes as drugs, viruses, or alcohol. The participants were divided into 4 groups according to AAR quartiles.

**Results:** Patients with higher AAR quartiles had higher VPT and more presence of DPN, and this association was independent of sex, age, BMI, and diabetic duration ( $P < 0.01$  or  $P < 0.05$ ). Moreover, AAR remained significantly associated with a higher odds ratio (OR) of DPN (OR 2.413, 95% CI 1.081-5.386,  $P < 0.05$ ) after multivariate adjustment. Further, the risk of DPN increased progressively as AAR quartiles increased (all  $P$  for trend  $< 0.01$ ); the highest quartile of AAR of male and female subjects was respectively associated with 107.3% (95% CI: 1.386-3.101;  $P < 0.01$ ) and 136.8% (95% CI: 1.550-3.618;  $P < 0.01$ ) increased odds of DPN compared with the lower quartiles. Last, the ROC analysis revealed that the best cut-off values for AAR to predict the presence of DPN were 0.906 (sensitivity: 70.3%; specificity: 49.2%; and AUC: 0.618) and 1.402 (sensitivity: 38%; specificity: 81.9%; and AUC: 0.600) in male and female subjects, respectively.

**Conclusions:** High AAR may be associated with the presence of DPN in T2DM and used as a further indicator of risk of DPN.

**Comments.** T2DM is an independent risk factor for the development of NAFLD and progression to liver fibrosis and cirrhosis. Also, NAFLD and liver fibrosis have been reported to play an important role in the presence and progression of DPN (*Greco C et al J Clin Med. 2021;10:4466; Huang J et al J Diabetes Investig. 2021;12:2019-2027*). Considering a certain intrinsic correlation among AAR, NAFLD and liver fibrosis, and diabetic vascular complication such as diabetic nephropathy (*Xu J et al Diabetes Metab Syndr Obes. 2021;14:3831-3837; Wu Y et al J Diabetes Complications. 2022;36:108235*), the authors evaluated the association between AAR and DPN. The study demonstrated that AAR was independently associated with an increased risk of presence of DPN. Thus, AAR might serve as useful and reliable biomarker of DPN. Despite the causality of the relationship between AAR and DPN could not be established due to the cross-sectional design, this study has several strengths such as a relatively large sample size, use of a standardized method at a single center, and thorough adjustment for possible confounding variables. In conclusion, these results highlight that it is crucial to pay more attention to patients with T2DM and high AAR to further prevent and reduce the development of DPN and related unfavorable health outcomes.

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**Reference.** Yan P, Wu Y, Dan X, Wu X, Tang Q, Chen X, Xu Y, Zhu J, Miao Y, Wan Q. Aspartate aminotransferase/alanine aminotransferase ratio was associated with type 2 diabetic peripheral neuropathy in a Chinese population: A cross-sectional study. *Front Endocrinol (Lausanne)*. 2023 Feb 27;14:1064125. doi: 10.3389/fendo.2023.1064125. PMID: 36909318; PMCID: PMC9998996.

<https://www.frontiersin.org/articles/10.3389/fendo.2023.1064125/full>