Checklist of items

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| Topic | Item No | Checklist | Reported on line |
| **Title and abstract** | 1 | (a)Impact of metabolic dysfunction-associated fatty liver disease on the functional cure of nucleoside analogues -treated chronic hepatitis B patients add-on pegylated interferon therapy | 19-22 |
| (b)MAFLD has no effect on PEG-IFN therapy for NAs-treated CHB patients to achieve functional cure, but CHB patients with MAFLD are less likely to achieve ALT normalization during treatment. | 35-59 |
| **Introduction** |
| Background/rationale | 2 | MAFLD is prevalent among patients with chronic hepatitis B .The impact of MAFLD on the clinical cure of chronic hepatitis B patients with PEG-IFN-alfha therapy remains unclear. | 63-103 |
| Objectives | 3 | The primary purpose of this study is to observe the impact of MAFLD on achieving HBsAg clearance in NAs-treated CHB patients receiving PEG-IFN therapy. | 104-105 |
| **Methods** |
| Study design | 4 | A retrospective analysis was performed on NAs-treated CHB patients who underwent PEG-IFN combination therapy . The patients were divided into CHB group and CHB-MAFLD group based on whether they were complicated with fatty liver. The primary endpoint was to assess the difference in HBsAg seroclearance rates between the two groups, and the secondary endpoint was to evaluate the differences in biochemical parameters and adverse reactions. | 118-130 |
| Setting | 5 | This study retrospectively collected the clinical data from NAs-treated CHB patients receiving Peg-IFN therapy at the Affiliated Hospital of Xuzhou Medical University from September 1, 2018, to December 31, 2022. | 108-110 |
| Participants | 6 | Inclusion criteria :(1) age ≥18 years old; (2) CHB diagnosis meeting the criteria of the "Chinese guidelines for the prevention and treatment of chronic hepatitis B (version 2022)"; (3)NAs treatment duration ≥1 year; (4) levels of serum HBV DNA < 20 IU/mL; (5)available liver ultrasound or FibroScan or other abdominal imaging reports before initial interferon treatment and at the end of follow-up. Exclusion criteria :(1) co-infection with other viruses (such as HCV, HDV, HIV, etc.); (2)concurrent alcoholic hepatitis, autoimmune liver disease, decompensated liver disease, or other severe diseases such as malignancies; (3)pregnant or lactating women; (4) lack of baseline or follow-up data. | 110-117 |
| Variables | 7 | Variables related to patient age, sex, family history, NAs type and treatment duration, adverse reactions, HBV DNA, HBV serum infection markers, complete blood count, blood biochemistry and imaging were collected | 133-135 |
| Data sources/ measurement | 8 | The clinical data of patients were obtained from the electronic medical record system of Xuzhou Medical University Affiliated Hospital. Patient information was updated every three months based on outpatient records and telephone follow-ups. | 132-136 |
| Statistical methods | 9 | All measurement data were non-normal continuous distributions. The Mann-Whitney U test was used to compare independent samples between the two groups and presented as the median (P25, P75). Categorical data are expressed as percentages (%) and were compared using the chi-square test. Binary logistic regression was used to analyze factors associated with HBsAg seroclearance. Propensity score matching (PSM) was performed to overcome baseline imbalances. Kaplan-Meier survival analysis was employed to compare the cumulative incidence of HBsAg seroclearance in predefined groups, with the log-rank test used to evaluate survival curves. A P value < 0.05 was considered to indicate statistical significance. | 144-153 |
| **Results** |
| Participants | 10 | Report numbers of individuals of study－eg:numbers potentially eligible, confirmed eligible, included in the study, completing follow-up, and analysed | Figure 1 |
| Descriptive data | 11 | Give characteristics of study participants | 156-166T able 1 |
| Outcome data | 12a | The difference of functional cure between the two groups－The results showed no significant difference in HBsAg clearance rates between CHB patients with and without MAFLD following PEG-IFN treatment. | 168-198Figure 2  |
| 12b | The comparison of biochemical indices after PEG-IFN treatment between the two groups－CHB patients with MAFLD are less likely to achieve ALT normalization during treatment. | 201-210Figure 3 and Table3  |
| 12c | The comparison of adverse events between the two groups－There was no significant difference in the incidence of adverse reactions between the CHB group and the CHB-MAFLD group | 212-221T able 4 |
| **Discussion** |
| Key results | 13 | The results showed no significant difference in HBsAg clearance rates between CHB patients with and without MAFLD following PEG-IFN treatment. This suggests that the presence of MAFLD does not influence the ability of PEG-IFN to achieve functional cure in NAs-treated CHB patients. Moreover, it was found that during PEG-IFN treatment, CHB patients with MAFLD had strikingly lower ALT normalization rates compared to the non-MAFLD group; however, 24 weeks after the end of treatment, there was no significant difference in ALT normalization rates between the two groups. | 223-287 |
| Limitations | 14 | The study is a single-center retrospective study with a small sample size and short follow-up duration. | 288-296 |
| Interpretation | 15 | The ultimate impact of MAFLD on liver inflammation progression requires long-term observation for clarification. Therefore, CHB patients with concurrent MAFLD should be closely monitored, and in addition to active antiviral therapy, it is important to change dietary habits and lifestyle. | 298-305 |
| **Other information** |
| Funding | 16 | The authors declare that no funds, grants, or other support were received during the preparation of this manuscript. | 311-312 |