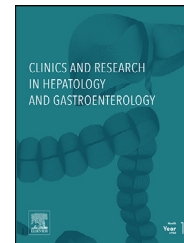




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## LETTER TO THE EDITOR

### Influenza vaccination adherence after liver transplantation: A collateral benefit of the COVID-19 pandemic (results of a patients' survey)



#### KEYWORDS

Influenza;  
 Vaccine;  
 Liver transplantation;  
 Survey

#### Abbreviations

LT liver transplantation

Influenza vaccination is recommended in organ transplant recipients [1] and is covered by health system in our country. A major limitation of this vaccination is the poor patients' adherence and lack of interest. In a recent German study in 401 liver transplant recipients, patients were asked for their vaccination documents (2014–2016) by phone [2]. Prevalence rates were high (>50%) for tetanus, diphtheria, hepatitis A and B, and pneumococci. On the contrary, the annual influenza vaccination rate was significantly lower, under 25%. The objective of the present study was to evaluate the adherence of a large cohort of liver transplant recipients to this vaccination, during the Covid-19 pandemic period, based on a questionnaire survey sent by phone text message.

A cohort of adult liver transplant patients, transplanted between 2000 and 2020, followed in 3 transplant centers (Lille, Lyon HEH and Villejuif) was enrolled. Patients had to have had a contact with their transplant center during the year 2020, and had to have a recorded phone number for sending a questionnaire by text message (Memoquest platform). Demographic and clinical data were available from patients' medical records. The questions concerned influenza vaccination and possible reasons for non-vaccination, for the winter 2020/2021 campaign. Patient consent was systematically obtained. The questionnaire was sent in May 2020 to a total of 1383 patients (Lille 33%, Lyon HEH 27% and Villejuif 44%). The SMS was received by 79% of patients. The response

rate (response sent) was 52.0% (568/1093) and the positive response rate (agreement and response to the questionnaire) was 47.5% (519/1093). Non-participating patients (negative response or no response to the text message) were significantly older (mean age 58.7 years vs. 56.6 years,  $p < 0.05$ ,  $t$ -test) and more often transplanted for alcoholic liver disease (58.6% vs. 15.4%,  $p < 0.05$  Chi-2 test). Gender and age of transplantation had no influence. The majority of the participating patients were male (70%), median age 60.0 years (mean 56.5 years), and the median length of transplantation was 6.4 years. The main indication for liver transplantation was alcohol-related liver disease (34.3%). The proportion of patients vaccinated against influenza for the 2020/2021 campaign was 65% and did not differ between centers (68%, 62%, 66%, respectively), but was significantly higher compared to the previous year (65% vs 57%,  $p < 0.05$  Chi-2 test). The main reasons for non-vaccination were: refusal (51%), no prescription (24%) and forgetfulness (10%). Of the patients refusing vaccination, 44% never get vaccinated, 16% fear side-effects, and 7% think the vaccine is ineffective. The only factor significantly associated with non-vaccination was younger age (mean age 52.7 vs. 58.6 years,  $p < 0.05$ ,  $t$ -test). Gender, age of transplantation and initial indication for transplantation (alcohol vs. other) had no influence. The proportion of patients willing to be vaccinated (or already vaccinated) against Covid-19 was significantly higher in patients vaccinated against influenza, compared to non-vaccinated (95% vs. 72%,  $p < 0.05$  Chi-2 test).

In conclusion, the results of this French cohort with a very good participation rate (around 50%) show a good influenza vaccination rate (65%), but with a quite probable "stimulating" effect of the Covid-19 pandemic. Efforts can be made with patients who have not been vaccinated for practical reasons (no prescription), as well as efforts to educate those who refuse vaccination on principle. The recent German study demonstrated that intensified communication by written information to the primary care physician and phone calls to the patients improved the number of vaccinations. Finally, it must be emphasized that the Covid-19 prevention measures had a very beneficial impact on the 2020/2021 influenza epidemic [3], which could have a negative impact on the next 2021/2022 vaccination campaign. This needs to be further investigated.

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