

Lactobacillus plantarum 299v reduces the incidence of Clostridium difficile infection in patients treated with antibiotics in the nephrological / transplantation department

Agata Kujawa-Szewieczek, Marcin Adamczak, Katarzyna Kwiecień, Sylwia Dudzicz, Magdalena Gazda, Andrzej Więcek

Department of Nephrology, Transplantation and Internal Medicine, Medical University of Silesia in Katowice, Poland

BACKGROUND

Lactobacillus plantarum 299v (LP299v) has been introduced into the clinical practice in order to reduce gastrointestinal symptoms during antibiotic exposure. However it remains controversial whether or not probiotics are effective in the prevention of infections with *Clostridium difficile* (CDI) among patients receiving antibiotics. The aim of this clinical, retrospective, single-centre study was to analyze the *C.difficile* infections among patients receiving antibiotics and hospitalized in the period before and after initiation of LP299v routine use, as a prevention of CDI, in the nephrology / transplantation ward.

METHODS

Among 3533 patients hospitalized in Department of Nephrology, Transplantation and Internal Medicine, Medical University of Silesia in Katowice during two years (October 2012 – October 2013 and December 2013 – December 2014) 23 patients with CDI were diagnosed and enrolled in this study. The CDI definition was based on the current recommendations of European Society of Clinical Microbiology and Infectious Diseases. Since November 2013 prevention of *C. difficile* infection with the oral use of LP299v was performed in all patients treated with antibiotics and who were at a high risk of developing CDI (patients after organ transplantation and receiving immunosuppressive drugs for any other reasons). For the further analysis the observation period was divided into two twelve-months intervals before (October 2012 to October 2013) and after initiation of LP299v use as the prophylactic maneuver against CDI (December 2013 to December 2014).

RESULTS

It was found a significant ($p=0.0001$) reduction of the number of cases of CDI after beginning of LP299v routinely used ($n=2$; 0.11% of all hospitalized patients) compared with the previous twelve-months period of observation ($n=21$; 1.21% of all hospitalized patients) (Figure 1). During these two twelve-month's periods of observation three patients suffered from CDI recurrence, including 2 episodes after initiation of *Lactobacillus plantarum 299v* as a routine prophylaxis. In these both cases recurrence of gastrointestinal symptoms and the severity of the infection (duration of diarrhea, number of stools per a day, average CRP serum concentrations) during LP299v prophylaxis was milder when compared with them before such a prophylaxis was introduced (Table 1).

■ Incidence of CDI [%]

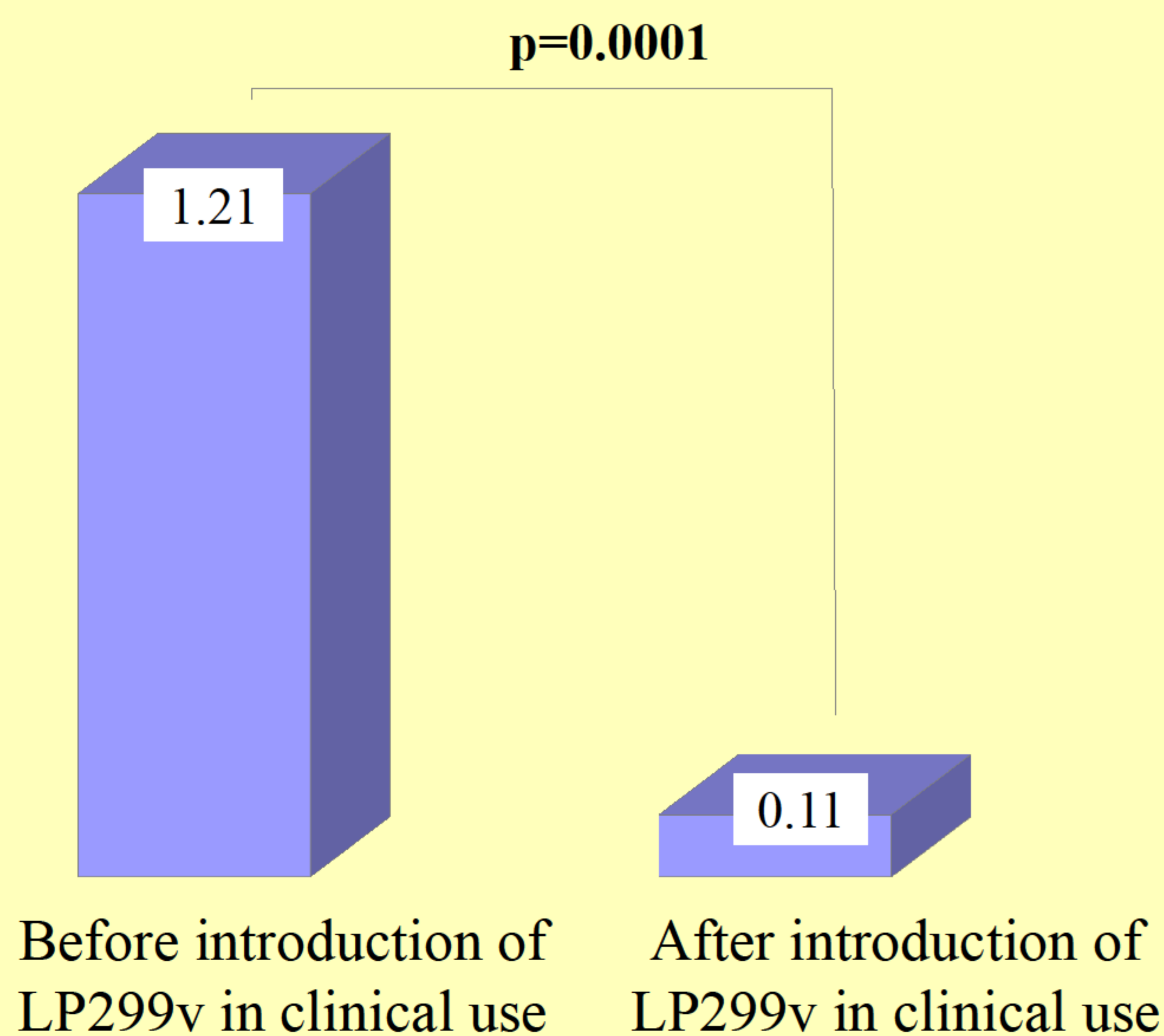


Fig. 1

Symptoms and the severity of CDI recurrence	Before LP299v use	After LP299v use
Duration of diarrhea [days]	28	9.5
Number of stools per a day	8	7
Abdominal pain [n]	2	2
Vomiting [n]	0	0
Fever [n]	2	2
Average leukocytes count [G/ L]	14.1	14.4
Average CRP serum concentrations [mg/L]	96.5	43.8

Tab. 1

CONCLUSION

Routine use of *Lactobacillus plantarum 299v* during treatment with antibiotics may prevent *C. difficile* infection, particularly in patients at high risk of CDI in the nephrology and transplantation ward.

