Prevalence of norovirus infections and prolonged shedding in symptomatic and asymptomatic kidney transplant patients in a Belgian University Hospital

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ObjeCTives

We conducted a prospective study to determine:
- the prevalence of NoV infection
- the duration of NoV excretion
- the putative impact of a reduction in immunosuppressive therapeutics on gastrointestinal symptoms and on NoV excretion.

StUdy deSign

A total of 117 kidney transplant patients were enrolled in this study from April 2010 to March 2014: 79 and 38 patients with or without gastrointestinal disorders, respectively, at the first visit.

Sampled population: adult kidney transplant patients, presenting or not gastrointestinal troubles, of the University Hospital of Liège, a 900-bed clinical hospital.

Clinical and epidemiological data as well as fecal samples were collected. NoV molecular detection and viral load quantification were performed for all samples.

All the patients detected positive for NoV in their first fecal sample were proposed to send back new samples in the following months in the aim to follow the NoV excretion.

Molecular Biology

Viral genomic RNA was automatically extracted with a Maxwell instrument (Promega, Leiden, The Netherlands). Molecular detection of genogroups (G) I, II and IV NoV in stool samples was performed by a home-made real-time RT-PCR, targeting the ORF1-ORF2 polymerase junction region.

NoV positive samples giving a Ct value below 26 were submitted to molecular characterization.

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RESULTS

NoV GII was the most prevalent genotype in both groups. In both symptomatic (SP) and asymptomatic (AP) patients, the presence of NoV was lower in older patients (OR6.95, p=0.019) (Fig. 1).

The mean log of viral loads for NoV GII did not differ between the groups BP and AP (p=0.87) (Table III).

Immunosuppressive treatment (IT)

Fig. 2. Proportion of detailed NoV genotype by age category in kidney transplant patients. NoV GII was the most prevalent in both groups.

CONCLUSION

NoV is a major viral enteric pathogen identified in transplant patients. In our prospective study, we described the clinical presentation and the prevalence of NoV among 117 adult kidney transplant patients presenting or not gastrointestinal disorders, with prevalence rate of 19% and 11% in each patients group respectively.

We highlighted a prolonged NoV excretion in both symptomatic and asymptomatic kidney transplant patients. When reduction of immunosuppressive treatment was applied, a decrease in NoV viral loads as well as improvement of the symptoms were observed in the symptomatic patients group.

Continued investigation will allow the understanding of the NoV impact in immunosuppressed patients.