1530. De-implementation Strategy to Reduce the Inappropriate Use of Urinary and Intravenous CATheters: the RICAT Study

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Session: 150. Urinary Tract Infection

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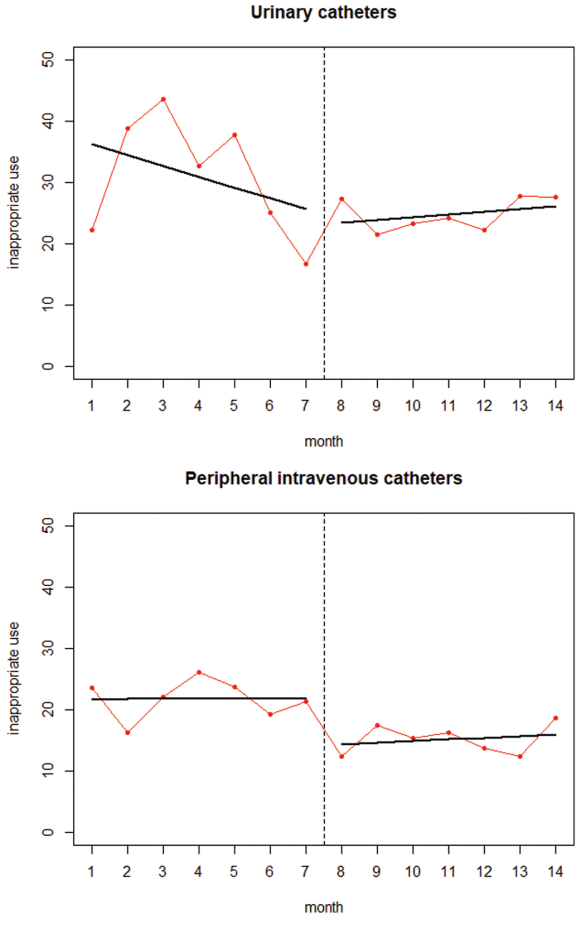
Background. Catheter-associated urinary tract infection (UTI) and catheter-associated bloodstream infection (BSI) are common healthcare-associated infections (HAI). Therefore, catheters should only be used if indicated. However, based on the literature up to 65% of the urinary catheters and 56% of the peripheral intravenous catheters have an inappropriate indication. So, an efficient way to reduce HAIs is to avoid unnecessary use of catheters. Our quality improvement project aims to reduce unnecessary use of catheters.

Methods. In a multicenter, interrupted time series study, several interventions to avoid inappropriate use of catheters were carried out in internal medicine and nonsurgical subspecialty wards in seven hospitals in the Netherlands. The indications for catheter use were based on (inter)national guidelines. The primary endpoint is the percentage of inappropriate indications on the day of data collection. Secondary endpoints are catheter-associated infections, length of hospital stay and mortality. Data were collected once per 2 weeks during baseline (7 months) and post-intervention (7 months). Preliminary analyses compared incidence rates before and after the intervention.

Results. Data were obtained from 5,691 observed patients. The rate of inappropriate use of urinary catheters decreased from 32.1 to 23.7% (incidence rate ratio 0.74, 95% CI 0.58–0.94, $P = 0.013$), and inappropriate use of peripheral intravenous catheters decreased from 22.0 to 15.2% (incidence rate ratio 0.69, 95% CI 0.60–0.80, $P < 0.001$). The overall urinary and intravenous catheter use was stable, resp. 12.2% ($n = 324$) to 12.5% ($n = 380$) and 62.8% ($n = 1,665$) to 62.1% ($n = 1,887$). Most inappropriate indications were due to prolonged catheter use. The indications which expire frequently are"Accurate measurements of urinary output in critically ill patients' for urinary and"IV fluids and antibiotic therapy' for intravenous catheters. Subsequent analyses will take into account the interrupted time series design, and evaluate catheter-associated UTI and BSI rates.



Conclusion. Our de-implementation strategy reduces unnecessary use of urinary and intravenous catheters in non-ICUs. It is important to increase awareness for inappropriate use of catheters.

Disclosures. **S. E. Geerlings**, Nordic Pharma: Consultant and Fosfomycin iv, consulting fee.

1531. A CMV Vaccine Based on Non-Replicating Lymphocytic Choriomeningitis Virus Vectors Expressing gB and pp65 Is Safe and Immunogenic in Healthy Volunteers, Allowing for Development of a Phase II Clinical Trial in Living Donor Kidney Transplant Recipients

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Session: 151. Viruses and Bacteria in Immunocompromised Patients

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Background. Cytomegalovirus (CMV) is a major pathogen in pregnancy and immunocompromised patients. Antiviral prophylaxis is limited by toxicities, recurrent infection, and antiviral resistance. A safe and protective CMV vaccine is highly desirable.

Methods. HB-101 is a CMV vaccine consisting of two nonreplicating lymphocytic choriomeningitis virus vectors, one expressing the human CMV antigen pp65 and the other a truncated, more antigenic isoform of the CMV fusion protein gB. The safety and immunogenicity of HB-101 were evaluated in a randomized, placebo-controlled, double-blind phase I dose-escalating trial (NCT02798692). Three dosing cohorts (1: 2.6×10^6; 2: 2.6×10^7 and 3: 2.6×10^8 FFU) of 18 subjects each were enrolled. On Day 0, Month 1, and Month 3, HB-101 or placebo was administered to 14 and 4 subjects, respectively. Immunogenicity studies included cellular responses against pp65, and humoral and cellular responses against gB and the LCMV vector.

Results. Injection site pain was the most frequently reported solicited adverse event (SAE). It affected 57.1% of HB-101 recipients in both cohorts 1 and 2 and 92.9% in cohort 3. Among the general SAE malaise, fatigue and generalized myalgia were most frequently reported. All SAE were generally mild to moderate and lasted <8 days. No serious adverse events and no abnormal lab tests were noted during the active phase of the study. HB-101-induced gB-specific IgG antibody responses at all doses, in a dose-dependent manner. All three dose levels also induced antibodies that neutralized HCMV infection in cultured human fibroblasts (MRC-5 cells), and resulted in a robust, boosterable and durable T-cell response by IFNγ ELISPOT for CMV gB and pp65. Polychromatic flow cytometry indicated induction of a high proportion of polyfunctional CMV-specific CD8 and CD4 T-cells. CD8 T-cells expressing IFNγ, IL2 and TNFα without CD107a were among the most prominent populations induced against CMV pp65.

Conclusion. HB-101 is a novel CMV vaccine with a good safety profile in healthy volunteers, eliciting strong humoral and cellular immune responses. We are starting a Phase 2 trial in kidney transplant candidates at higher risk for CMV infection. We plan to give multiple vaccinations prior to living donor kidney transplant, and will follow post-transplant for safety, immunogenicity, and efficacy.

Disclosures. **C. N. Kotton**, Hookipa: Consultant, Consulting fee and Speaker honorarium. **M. Schwendinge**, Hookipa: Employee, Salary. **G. Thiry**, Hookipa: Consultant, Consulting fee. **B. DeVos**, Hookipa: Consultant, Consulting fee. **F. De Boever**, Hookipa: Consultant, Consulting fee. **G. Leroux-Roels**, Hookipa: Consultant, Consulting fee. **A. Lilja**, Hookipa: Employee, Salary.

1532. Increased Risk of Bacterial, Fungal and Other Viral Infections During CMV Infection: Decreased Cytokine Production in Response to Toll-Like Receptor Ligands

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Session: 151. Viruses and Bacteria in Immunocompromised Patients

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Background. In the solid-organ transplant (SOT) setting, CMV is an immunomodulatory virus that indirectly increases the risk for bacterial, fungal and viral infections. However, the pathogenesis of this phenomenon is poorly understood. The aim of our study was to determine whether inflammatory responses to different Toll-like receptor ligands are blunted during CMV infection in SOT patients.

Methods. CMV D+/R− SOT patients had blood drawn at the end of CMV prophylaxis and then weekly after onset of CMV viremia. PBMCs were extracted and incubated for 24 hours in the presence of bacterial (LPS), fungal (Zymosan [ZYM]), and viral (Resiquimod [R848]) ligands. Proinflammatory (IL1β), Th1 (IFNγ), Th2 (IL4), immunoregulatory (IL10), and chemotactic (MCP1) cytokines were measured in the supernatant by multiplex ELISA.

Results. Thirty-eight SOT patients were followed for at least 9 months. Patients who developed subsequent CMV infection had lower cytokines in response to bacterial, fungal and viral ligands (LPS, ZYM, and R848) at the end of prophylaxis compared with those with no CMV infection. These results were independent of immunosuppression and peripheral blood cell counts. Specifically, these trends were significantly different with respect to IFNγ, IL1β, and IL10 production in response to