8th IREC PhD Day

Friday, September 17th, 2021

Auditorium Maisin, UCL-Bruxelles

Event for IREC PhD students and Post-docs. Mandatory registration.

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Research group(s)/Pole: PEDI
Promotor(s): Dimitri Van der Linden
Type of presentation: Poster presentation

P22

Phage therapy to allow liver transplantation in a toddler infected by an extensively drug-resistant Pseudomonas aeruginosa

We describe the case of a 14-month-old Algerian child who developed severe sepsis with extensively drug-resistant (XDR) Pseudomonas aeruginosa after liver transplantation. Bacterial infections are a common, early-occurring type of complication after liver transplantation. Acute bacterial infections with XDR pathogens can yield significant mortality and morbidity, and represent therapeutic challenges.

Phage Therapy is the use of lytic bacteriophage viruses (simply called "phages") as bactericidal agents by exploiting the lytic cycle that they perform specifically in the targeted bacteria. Phages are abundantly and ubiquitously present in our natural environment, where they act as bacteria's natural predators and regulators. They have been used in antibacterial therapy for over a century, though mainly outside the Western world ; however, phages have been subject to a renewed interest in the Western world in light of the growing antimicrobial resistance crisis.

In the case of this patient, combined used of antibiotics with an 86-day-long multi-modal (intravenous, intrahepatic, and intraperitoneal) phage therapy against an acute XDR-Pseudomonas aeruginosa sepsis led to the long-term eradication of Pseudomonas aeruginosa from blood cultures and to a significant improvement of the patient on the clinical plan. This eventually allowed for a successful liver re-transplantation. Delivering optimized phage therapy was made possible by close collaboration with the medical and scientific phage team of Queen Astrid Military Hospital (Brussels, Belgium) and its Laboratory for Molecular and Cellular Technology. No adverse event was linked to this therapy. To this day, the child has not known any new infectious outbreak.