Identifying primary immunodeficiency diseases in children suffering from refractory diarrhea

Prof. Wen-I LEE

Professor of Pediatrics, Chang Gung Memorial Hospital and University

Director of the Primary Immunodeficiency Care And Research (PICAR) Institute

Diarrhoea lasting longer than 14 days and failing to respond to conventional management is defined as severe and protracted diarrhoea (SD). In our referral centre, we investigated the prevalence, pathogens and prognosis of SD in primary immunodeficiency diseases (PIDs). Among 246 patients with predominantly paediatric-onset PIDs from 2003-2016, 21 with mutations of the Btk, IL2RG, WASP, CD40L, gp91, gp47, and RAG2 genes and five [CVID and SCID] without identified mutations had SD before prophylactic treatment. Detectable pathogens by rank included pseudomonas, salmonella, E. coli, cytomegalovirus, coxsackie virus and cryptosporidium, all of whom improved after a mean 17 days of antibiotics and/or IVIG treatment. Seven (7/26; 27.0%) patients died of respiratory failure (four), lymphoma, sepsis and intracranial haemorrhage (one each). The patients with WAS, CGD and CD40L and SD had a higher mortality rate than those without. Another five males with mutant XIAP, STAT1, FOXP3 (one each) and STAT3 (two) had undetectable-pathogenic refractory diarrhoea (RD) that persisted >21 days despite aggressive antibiotic/steroid treatment and directly resulted in mortality. For the patients with RD without anti-inflammatory optimization, those with mutant XIAP and FOXP3 died of Crohn's-like colitis and electrolyte exhaustion in awaiting transplantation, while transplantation cured the STAT1 patient.