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Risk factors for development of peritonitis in peritoneal dialysis patients

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Peritoneal dialysis (PD) is the simplest and most economical treatment for renal failure patients. Nevertheless, the prevalence of this treatment is low worldwide due to its potential complications, which mainly include protein loss and peritonitis. Peritonitis is a clinically significant condition that contributes to the high mortality and morbidity rates observed in PD patients. Intensive medical staff and patient education, as well as advanced improvements in aseptic techniques, have recently been introduced, but the factors that predispose PD patients to peritonitis are still not fully understood. The overall objective of this research was to analyse the components of peritoneal dialysis fluids (PDFs) for the presence of protein and (hormonal factors) that might boost susceptibility to infection. Clinical samples included initial and follow-up PDF samples collected from nine renal failure patients. Intra and inter patient proteomic profiling showed significant variations in the total/type of protein lost into the PDF. Molecular components of the PDFs such as catecholamines (which we showed for the very first time was present in PDF) were also investigated for their ability to modulate the growth and virulence of peritonitis-causing bacteria. The results pointed towards the identity of the factors that might be infection-risk-associated as being serum transferrin, which was found to be significantly more iron saturated than in the blood. Use of radioactive iron-labeled transferrin showed it could act as a direct iron source for peritonitis-causing bacteria. We use our data to provide anti-infection suggestions that could lead to improvements in PD patient care.

Biography

Marwah Al-Driwesh is a final year PhD student at the University of Leicester, UK. She also holds a Master's degree in Molecular Genetics.

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Page 29