Honey shows no advantages compared to standard antibiotics in trial on patients with kidney failure

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Applying medical grade honey to wound sites in patients undergoing peritoneal dialysis—a procedure used to clean the blood in patients with kidney failure—shows no advantages over standard antibiotic use, according to new results published in *The Lancet Infectious Diseases*.

The research, which is the first time honey has been tested as an antibacterial agent in peritoneal dialysis, will disappoint clinicians who had hoped that honey might offer a better alternative to antibiotics for this procedure. Peritoneal dialysis is an important treatment for individuals with kidney failure, whereby a catheter is inserted into the peritoneum (the thin membrane which surrounds the organs in the abdomen) and dialysis is used to clean the blood in the absence of functioning kidneys.

Worldwide, peritoneal dialysis is used in more than 200 000 patients annually with end-stage kidney failure, but further uptake of the procedure has been limited due to the risks of infection, either at the site of catheter insertion, or of the peritoneum itself (peritonitis). This type of infection can have life-threatening consequences, and although it is usually treated with antibiotics, the types of antibiotics which are suitable for use in these circumstances are effective against only a narrow range of infections, and are increasingly contributing to antibiotic resistance.

Several trials and meta-analyses have suggested that medical grade honey – produced by comprehensively sterilising standard honey – is effective against a wider range of microorganisms than antibiotics typically used to prevent wound infections, and does not appear to contribute to antibiotic resistance. These promising properties led a team of researchers, led by Professor David Johnson at the Australasian Kidney Trials Network (The University of Queensland) and Princess Alexandra Hospital in Brisbane, Australia, to test the performance of honey applied daily to the wound site in patients receiving peritoneal dialysis against a standard antibiotic treatment applied nasally, mupirocin.

371 trial participants undergoing peritoneal dialysis were recruited from 26 different medical centres in Australia and New Zealand, with 186 patients receiving a daily application of 10mg of medical grade honey to the site of catheter insertion, alongside standard wound care. The remaining 185 patients were assigned to the control group, where they were tested for nasal carriage of S aureus, and treated with mupirocin plus standard care if they tested positive, and just standard wound care if S aureus could not be detected.

The researchers found no significant difference between the average time to first infection in the honey or control groups, with patients in the honey group having an average of 16 months until their first infection, and patients in the control group having an average of 17.7 months until their first infection. Furthermore, the results showed that for patients with diabetes, the time to first infection was significantly reduced in the honey group (11.6 months on average), and the risk of peritonitis was almost twice as high compared to patients with diabetes in the control group.

"While the fact that honey doesn't contribute to antibacterial resistance makes it an attractive option for preventing infection at wound sites, our results suggest that honey cannot be routinely recommended for the

prevention of infections related to peritoneal dialysis," says Professor Johnson. "Not only do our results show that honey doesn't work any better than standard exit site care and additional nasal mupirocin for nasal carriage of S aureus in protecting peritoneal dialysis patients from infection, we had a high rate of withdrawal from the study in the honey group, usually at the request of the patient or physician. This suggests that patients may have found the daily application of honey to the wound site uncomfortable or inconvenient."

In a linked Comment, Professors Achim Jörres and Wim van Biesen point out that with rising rates of end stage renal disease worldwide, new research into the best options for peritoneal dialysis patients is to be welcomed. However, they suggest that the disappointing efficacy of honey in protecting against infection in this trial may not be entirely due to the properties of honey as an antibacterial agent, writing that, "Although the results of [this study] show the efficacy of mupirocin versus Medihoney, the important question of whether patients with a healthy catheter exit site for peritoneal dialysis should receive prophylactic treatment remains to be addressed. In our view, and according to the principle of primum non nocere (first do no harm), the key to preservation of exit-site integrity is optimal catheter fixation and avoidance of unnecessary manipulations."

More information: www.thelancet.com/journals/lan … (13)70258-5/abstract

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