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EFFECT OF PROBIOTIC SUPPLEMENT ON METABOLIC PARAMETERS IN PATIENTS WITH DIABETIC NEPHROPATHY : A SYSTEMATIC REVIEW

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Objectives: Diabetic nephropathy (DN), a complication of diabetes, is one of the main causes of end-stage renal disease. Probiotic supplements were reported as a strategy for modulating gut micro-flora and have favourable effects on renal function. This study aimed to research the effect of probiotic supplement on metabolic parameters in patients with DN.

Methods: We conducted a systematic review of all studies published between 2019 – 2023, on outcome of probiotic supplementation on patients with DN. Through a comprehensive search on PubMed and Cochrane Library. Terms used in this research were included MeSH headings for probiotic and metabolic and DN. We identified two eligible studies. Risk of bias analysis was performed using the Cochrane Risk of Bias Tool.

Results: 30 patients with DN received 25 g/day probiotic honey containing probiotic *Bacillus coagulans* T11 (108 CFU/g) (treatment) and 30 patients received 25 g/day control honey ($n = 30$ each group) for 12 weeks. After 12 weeks of intervention, patients who received probiotic honey compared with the control honey had significantly decreased serum insulin levels (-1.2 ± 1.8 vs. -0.1 ± 1.3 μ IU/mL, $P = 0.004$). Another study stated that 42 patients received 3.2×10^9 CFU per day of probiotics containing (*Bifidobacterium bifidum* 1.2×10^9 CFU, *Lactobacillus acidophilus* 4.2×10^9 CFU, *Streptococcus thermophilus* 4.3×10^9 CFU) for 12 weeks and 34 patients received empty capsules for 12 weeks. After 12 weeks there was a significant reduction in fasting blood glucose (10.68 ± 3.24 mmol/L before vs. 7.81 ± 2.77 mmol/L after, $p < 0.05$), HbA1c ($8.19 \pm 1.60\%$ before vs. $7.32 \pm 1.20\%$ after, $p < 0.05$) and mAlb/Cr (101.60 ± 22.17 mg/g before vs. 67.53 ± 20.11 mg/g after, $p < 0.05$),

Conclusions: This study showed that probiotic administration could ameliorate metabolic parameter of patients with diabetic nephropathy.

figure 1. systematic review flowchart