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Impact of three antiparasitic agents against cryptosporidiosis in diabetic mice

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Abstract

Diabetes is the most frequent metabolic ailment. Diabetic patients are considered immune compromised individuals. Cryptosporidiosis is an opportunistic infection causing watery diarrhea and intestinal dismay in immune compromised diabetic individuals. Many trials have been advocated to testify the effectiveness of treatment regarding various anticryptosporidial drugs. In this work the effect of Nitazoxanid, Ivermectin and Artemether was studied in Cryptosporidium parvum infected diabetic mice. The goal of this study was to assess the parasitological and pathological imprints post treatment in these mice. It was shown that Artemether yielded the highest oocyst load reduction (both intestinal and fecal). Nitazoxanide the commonly used anticryptosporidial drug also reduced the parasitic load but to a less extent. At last, came the Ivermectin which also showed a significant drop compared to the respective control but to a least extent. From this trial it was concluded that all three antiparasitic agents effectively reduced intestinal and fecal Cryptosporidium oocyst loads. Although blood sugar reached an undesirable level in the forementioned diabetic mice, yet these levels increased significantly in the groups treated with either Artemether or Ivermectin as compared to respective control. Pancreatic tissue of diabetic infected mice showed vascular wall fibrosis with reduction in the number and size of islets of Langerhans, the group treated with nitazoxanide showed improvement in pancreatic architecture. Both Artemether and Ivermectin showed hyperplastic islets of Langerhans, all groups did not receive anti diabetic treatment. Therefore, antidiabetic treatment should never be unwisely discontinued in concurrent parasitic infections.

Biography

Hagar Fathy Abdel-Maksoud Ebraheem is a Medical Parasitology Lecturer in parasitology department at Theodor Bilharz Research institute, Cairo, Egypt. Postgraduate studies, Masters (MSc) Degree in Parasitology and MD, Medical Parasitology were conducted in Ain Shams University and Cairo University in Cairo, Egypt, respectively. She has special interest in medical parasitology, immunology and molecular applications.