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IN THE TREATMENT OF FLARES OF INFLAMMATORY BOWEL DISEASE, INTRAVENOUS HYDROCORTISONE CAUSES GREATER FALLS IN BLOOD POTASSIUM AND MORE SEVERE EPISODES OF HYPOKALAEMIA THAN METHYLPREDNISOLONE

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Introduction Corticosteroids are important treatments for acute exacerbations of inflammatory bowel disease (IBD). In severe flares, or when oral steroid has proven unsuccessful, high dose intravenous steroid can be given in a hospital setting. Two intravenous corticosteroids are in common usage: hydrocortisone (HC) and methylprednisolone (MP). As well as the therapeutic glucocorticoid effect, both agents have mineralocorticoid effect. The mineralocorticoid effect of HC is greater than MP at the doses commonly used. It has been noted that high dose HC can cause life threatening hypokalaemia. To the authors' knowledge, the effects of MP and HC on serum potassium levels have not been assessed for a group of patients being treated for flares of IBD.

Methods The case notes of patients with IBD were studied and details of admissions requiring intravenous steroid were noted. Blood potassium (K) levels on admission and throughout the inpatient stay were recorded. Disease extent and severity on admission was noted. Length of admission, length of steroid course, and whether the patient had surgical intervention or started ciclosporin or biologic therapy was also noted.

Results There were 126 patients; 81 with Ulcerative colitis (UC) and 45 with Crohn's (CD). 170 admissions required intravenous steroid. HC was administered on 99 occasions and MP on 71. There was no significant difference between the average length of steroid course; 7.52 days for HC and 7.21 for MP. Similarly for length of stay; 13.62 days for HC and 12.86 for MP. Of all the admission episodes, 37 had no drop in serum potassium (37/170=21.8%). Of these, 9 were patients on HC (9/99=9.1%, while 28 were patients on MP (28/71=39.4%). The average drop in potassium measured during steroid courses was 0.814 (SD=0.497) for HC and 0.321 (SD=0.350) for MP, $p<0.0001$, that is, highly significant. The greatest fall in serum K was 2.2 for HC and 1.4 for MP. The mean lowest K reached was 3.24 for HC, 3.85 for MP. The number of patients who became hypokalaemic, that is, serum $K<3.5$ was significantly greater for HC than MP; 68/99=69% for HC, 8/71=11% for MP, $p<0.0001$. The number of patients requiring K supplementation, was greater for patients on HC than for those on MP, 67.7% of HC patients needed K supplementation, while only 11.3% of MP patients had supplementation prescribed.

Conclusion The authors have shown that Hydrocortisone causes increased incidence of hypokalaemia compared to methylprednisolone when used to treat exacerbations of IBD. Given for possible adverse effects of hypokalaemia, intravenous methylprednisolone should be the treatment of choice in these patients.

Competing interests None.

Keywords corticosteroid, ulcerative colitis, acute severe colitis, Crohn's disease, hypokalaemia.