Sir,

Drug-induced leukopenia in a diabetic patient with larvate endophthalmitis

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Leukopenia is a condition that may facilitate the apparition of infections and delay their diagnosis by altering the immune response of the body. It can be produced by certain diseases, induced by infections or by certain drugs. Diabetes is known to cause an immunologic defect, which seems to be because of diabetic microangiopathy and altered chemotactic, phagocytic, and bactericidal activity of leukocytes during hyperglycaemia.[1,2] Yet more factors may be involved in the immunologic response in diabetic patients.

Case report

A 72-year-old man underwent uneventful phacoemulsification in his left eye. His medical history was significant for 2 years of type II diabetes mellitus, under treatment with gliclazide 80 mg t.i.d., prostate hypertrophy with frequent urinary infections, and penicillin allergy. He has previously undergone appendectomy, chordectomy, dacryocystectomy, and blepharoplasty. He had presented moderate leukopenia (white blood cells, WBC: 1500–4000/mm^3, reference 4000–11000) since he started on gliclazide. Preoperative work-up showed moderate leukopenia (WBC: 3860) with 60% neutrophils, 35% lymphocytes, and normal erythrocytes and platelets.

The day after surgery, the patient showed mild corneal oedema with myosis. At 36 h after surgery, the patient experienced decrease in visual acuity and 24 hours later moderate pain in the operated eye. The fourth day after surgery, he presented with light perception. Slit-lamp examination showed myosis, pupillary fibrin, and moderate anterior chamber inflammation with mutton-fat precipitates and no hypopyon. Intraocular pressure was 20 mmHg. Fundus examination was not possible because of myosis and fibrin. B-scan ultrasonography showed vitreous debris.

Surgical endophthalmitis was suspected, aqueous and vitreous taps were performed, and 1 mg vitreous injection of vancomycin was given. Intravenous vancomycin and cyprofloxacin, and topical atropine 1% t.i.d., prednisolone phosphate 1% six times a day and gentamicin 1% six times a day were started.

After 24 h, later intravenous steroid therapy with 60 mg methyl-prednisolone every day was started. Gliclazide was changed to insulin for a better control of glycaemia. A blood cell count was performed and 2070 WBC were found. Aqueous and vitreous taps were positive for vancomycin-sensitive *Streptococcus* sp. Cyprofloxacin was interrupted and the remaining intravenous and topical medications were continued.

On the following days, the patient had difficult light perception, slit-lamp examination showed resolution of fibrin, while B-scan ultrasonography showed no changes in vitreous activity. On the fourth day, WBC was 3140 neutrophils and 900 lymphocytes. Two more vitreous injections of vancomycin were given at days four and seven, and intravenous and topical medications were continued.

The patient reported more pain 6 days after the diagnosis of endophthalmitis. Slit-lamp examination showed hypopyon for the first time in this patient, while B-scan ultrasonography showed an increase in vitreous activity. WBC was 3863 neutrophils and 1080 lymphocytes.

Posterior vitrectomy was performed, in which retinal necrosis was observed. Vitreous aspirate cytology identified inflammatory cells. Cultures from vitreous aspirate were negative.

At 10 days after diagnosis, WBC count was 5500 neutrophils with 1200 lymphocytes.

A bone marrow biopsy was performed, which showed an increased myeloid/erythroid ratio of 80/15, with 1% myeloblasts, 1% promyelocytes, 3% myelocytes, 16% metamyelocytes, 20% rods, 32% segmented cells, with the diagnosis of granulocyte hyperplasia and peripheral neutropenia.

Two weeks after discharge from hospital, the patient referred malaise and fever. No ocular symptoms were referred. Gliclazide had been reintroduced by his general practitioner 2 weeks earlier. WBC was 1630 with 608 neutrophils. Gliclazide was discontinued for insulin and 1 week later WBC was 4630 with 3241 neutrophils (Figure 1).

Comment

We describe a case of surgical endophthalmitis with a larvate and atypical onset. The lack of pain and inflammatory reaction was probably because of neutropenia. Pain, hypopyon, and important vitreous activity developed when counts of WBC reached normal levels after the discontinuation of gliclazide. After discharge from hospital, the patient was reintroduced to gliclazide and suffered again from leukopenia, which ceased after discontinuation of the drug.

Gliclazide is a sulphamide which is often used in the treatment of diabetes. It has been exceptionally related to blood alterations in sulpha-sensitive patients. This effect

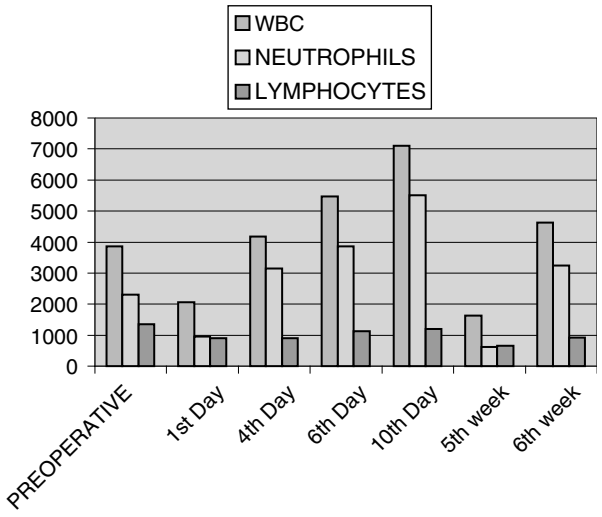

Figure 1 Evolution of white blood cell count (WBC). Changes in neutrophils and lymphocytes per cubic millimetre. Days are counted after diagnosis of endophthalmitis. On fifth week, gliclazide had been introduced for 2 weeks. It was discontinued the same day and 1 week later WBC count had partially recovered.

has been previously noticed with other drugs of the same family like tolbutamide in 0.18% of cases; in half of them, WBC count returned to normality without discontinuation of the drug.[3–6]

WBC are responsible for the inflammatory response to infection, neutrophils and lymphocytes being involved in the formation of hypopyon.[7] Neutropenia has been associated to a higher risk of surgical endophthalmitis.[8,9]

To our knowledge, this is the first case of antidiabetic drug-induced leukopenia related to endophthalmitis in a diabetic patient. Patients with low preoperative WBC counts on oral antidiabetic drugs undergoing eye surgery might need to discontinue these for insulin in order to improve their immunologic response to infection.

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Sir,

Traumatic and postoperative hyphaema in a patient with sickle cell trait

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Following traumatic hyphaema in sickle cell trait patients, the sickled red blood cells occupy the corneoscleral meshwork, juxtacanalicular connective tissue, and the inner wall of Schlemm's canal resulting in a resistance to aqueous outflow.[1]

This is thought to be a cause for a significant rise in intraocular pressure (IOP) that is frequently associated with sickle cell hyphaemas. A reported series of 99 patients with hyphaema found that 92% of sickle cell-positive patients had an IOP greater than 22 mmHg within 48 h of admission.[2] This compared to only 19% of sickle cell trait-negative patients.

We present a case with traumatic hyphaema and elevated IOP in a patient with sickle cell trait who failed to respond to medical therapy. Anterior chamber washout normalised the IOP despite resulting in a hyphaema similar in magnitude to the initial hyphaema caused by trauma.