Ophthalmology Research: An International Journal
4(3): 80-82, 2015, Article no.OR.2015.032
ISSN: 2321-7227

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Sudden Loss of Vision Associated with Use of Systemic Non-steroidal Anti-inflammatory Drugs

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Authors' contributions

This work was carried out in collaboration between the authors. Author ACO designed, managed the literature search and wrote the final paper. Author OAO wrote the first draft of the manuscript and carried out the laboratory studies. Both authors read and approved the final Manuscript.

Article Information

DOI: 10.9734/OR/2015/18295
Editor(s):
(1) Li Wang, Department of Ophthalmology, Cullen Eye Institute, Baylor College of Medicine, USA.
Reviewers:
(1) S. K. Prabhakar, Department of ophthalmology, JSS University, India.
(2) Rahmi Duman, Şevket Yılmaz Training and Research Hospital, Turkey.
(3) Anonymous, Venezuela.
Complete Peer review History: http://www.sciencedomain.org/review-history.php?iid=1023&id=23&aid=9553

Case Report

Received 14th April 2015
Accepted 1st May 2015
Published 2nd June 2015

ABSTRACT

Non-steroidal anti inflammatory agents have long been used in ocular therapeutics as a result of their effect on infllammation coupled with the undesirable side effects of steroids in Ophthalmology. Bleeding peptic ulcers have been strongly associated with use of oral non-steroidal anti inflammatory drugs. We present the case of a 51 year old male patient who presented with 4 days history of visual loss in his right eye following the use of 400 mg Ibuprofen three times a day for 3 days one week prior to presentation. Fundus examination revealed a pre-retinal hemorrhage. There may be need to be cautious with the use of these drugs.

Keywords: Non-steroidal anti-inflammatory drug; loss of vision; retinal haemorrhage.

1. INTRODUCTION

Non steroidal anti inflammatory drugs (NSAID) have been used medically since 1763. Their strong effect on inflammation coupled with the undesirable side effects of steroids in ophthalmology has made NSAID popular in ophthalmic therapeutics. They are increasingly employed to reduce miosis, inflammation, and prevent/treat cystoid macular edema associated

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with cataract surgery. Furthermore, they are used to reduce postoperative pain and photophobia associated with refractive surgery and to reduce the itching associated with allergic conjunctivitis.

Retinal hemorrhages follow a number of situations such as presence of abnormal vessels that bleed easily such as found in diabetic retinopathy, central retina vein or artery occlusions, hypertensive retinopathy and so on. The pathogenesis in these conditions is as a result of ischemia, hypoxia and neovascularisation. These new vessels have fragile walls and tend to rupture easily. They can also be found in valsalva retinopathy in which there is raised intra abdominal pressures and raised intra-orbital pressures such as found after straining at defaecation, coughing, sneezing, weight lifting, vomiting and blowing musical activity.

Bleeding peptic ulcers have been strongly associated with use of NSAIDs.1 An association has also been found between type of non-steroidal anti inflammatory drug and dose used. Risk was found to be lowest for Ibuprofen and diclofenac, intermediate for indomethacin, naproxen and piroxicam while azapropazone and ketoprofen carried the highest risks [1,2].

However, retinal hemorrhage following systemic use of non steroidal anti inflammatory drugs (NSAID) has not been reported in literature.
Non steroidal anti inflammatory drugs (NSAIDs) inhibit the activity of both cyclooxygenase 1 and cyclooxygenase 2 and therefore the synthesis of prostaglandins and thromboxanes. Inhibiting COX2 leads to the anti inflammatory, analgesic and antipyretic effects and inhibiting COX1 can cause bleeding by increasing the permeability of blood vessels. NSAIDs have marked inter-subject variability in response and incidence of side effects [3]. Hemorrhages can be pre-retinal, sub retinal or intra retinal.

2. CASE REPORT

A 51 year old male patient with previously diagnosed hypermetropia and bilateral immature cataracts presented with 4 days history of visual loss in his right eye. He had no previous history of diabetes mellitus, hypertension, bleeding disorder or sickle cell disease. There was no history of trauma but one week before presentation, he treated body pains with Ibuprofen 400 mg three times a day for 3 days. His visual acuity was counting fingers on the right and 6/6 on the left with glasses. Dilated fundoscopy using 1% tropicamide revealed a pre-retinal haemorhage involving the macular region. Fundus photograph of the same patient is as shown in Fig. 1.

His blood pressure was 130/80 mmHg, packed cell volume 42%, genotype AA, fasting blood sugar 92 mg/dl.

Fig. 1. Pre retinal hemorrhage following the use of NSAID

3. DISCUSSION

Retinal haemorrhages are commonly found in diseases such as systemic hypertension, [4] sickle cell disease, [5,6] diabetes mellitus, [7] central retinal vein occlusion and so on. Subhyaloid and retinal haemorrhages are usually associated with retinal neovascularization but they can also be caused by posterior vitreous detachment and retinal breaks that is associated with tearing of a major retinal vessel. The patient in this report did not have anything suggestive of these causes. Valsalva retinopathy is also associated with retinal haemorrhages but this patient did not have any history of straining at defaecation, coughing, sneezing, weight lifting, vomiting or blowing musical activity.

He has no history of bleeding disorders and his laboratory reports did not reveal sickle disease thrombocytopenia or anaemia.

Retinal haemorrhages may remain undetected for many years if they do not involve the macula. Sometimes they are picked up when the eye is examined in detail by ophthalmoscopy

and fundus photography. However, some retinal haemorrhages can cause severe impairment of vision if they involve the macula as in this case or they occur in connection with posterior vitreous detachment or retinal detachment.

Non steroidal anti inflammatory drugs (NSAID) have a strong effect on fever, pain and inflammation. These effects have made them very useful in ophthalmology especially considering the undesirable side effects of steroids such as glaucoma. They are increasingly employed to reduce miosis, inflammation, and prevent or treat cystoid macular edema associated with cataract surgery. Furthermore, they are used to reduce postoperative pain and photophobia associated with refractive surgery and to reduce the itching associated with allergic conjunctivitis.

Systemic NSAIDS are used in selected cases in ophthalmic practice. However, the use of systemic NSAIDS for non-ocular conditions is still very common and patients tend to get them readily from pharmacy shops in developing countries.

Although, bleeding peptic ulcers have been strongly associated with use of NSAIDs, retinal haemorrhages have not been commonly reported [1]. This may be due to the fact that they may remain unreported if they do not affect sight.

This case illustrates a serious adverse effect of NSAIDs. It is therefore necessary to curb indiscriminate use of systemic NSAIDs.

4. CONCLUSION

Non-steroidal anti inflammatory drugs can cause sudden loss of vision from bleeding that affects the macula. Necessary steps should be taken to educate the populace to stop indiscriminate use of drugs especially NSAIDs.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=1023&id=23&aid=9553