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Intraoperative floppy-iris syndrome associated with use of antipsychotic drugs

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Abstract: We present an intraoperative floppy iris syndrome (IFIS) in a patient taking antipsychotics for the treatment of schizophrenia. At presentation, his visual acuity was hand motion in both eyes. Slit-lamp examination revealed marked opacity and phacodonesis in both lenses. Moreover, the pupil dilated to only 4.0 mm under mydriatic eye drops. During the operation, to avoid severe IFIS, multiple pupillary sphinctectomy was initiated. Lens extraction was performed carefully by lens loop. Then, intraocular lens was successfully implanted into the capsular bag. Although flaccid and billowing iris was developed, iris prolapse through the surgical incisions and progressive intraoperative pupil constriction did not occurred. Surgeons should keep in mind the possibility of IFIS in patients using antipsychotics.
Keywords: Intraoperative floppy-iris syndrome, schizophrenia, antipsychotic drugs.

INTRODUCTION

Intraoperative floppy iris syndrome (IFIS) consists of a triad of flaccid and billowing iris, iris prolapse through the surgical incisions, and progressive intraoperative pupil constriction [1-4]. It is well known that IFIS is associated with the use of systemic α1-adrenergic receptor antagonists [1-4]. Recently, several reports have described IFIS in patients with antipsychotic drug use [5-10]. We present an incomplete IFIS in a patient taking many kinds of antipsychotic drugs for the treatment of schizophrenia.

CASE REPORTS

A 63-year-old man with schizophrenia presented with cataract in both eyes. He was admitted to a referral psychiatric hospital since his adolescence. He had taken many kinds of antipsychotic drugs, including perospiron, levomepromazine, biperiden, lorazepam, chlorpromazine, promethazine, and phenobarbital. At presentation, his visual acuity was hand motion in both eyes. Slit-lamp examination revealed marked opacity and phacodonesis in both lenses. Moreover, the pupil dilated to only 4.0 mm under mydriatic eye drops. Fundus examination was impossible due to hyper mature cataract. Based on the above findings, we had planned extracapsular cataract extraction instead of phacoemulsification and aspiration under general anesthesia. To avoid severe IFIS, multiple pupillary sphinctectomy was initiated. Lens extraction was performed carefully by lens loop. Then, intraocular lens was successfully implanted into the capsular bag. During the operation, flaccid and billowing iris was developed, however, iris prolapse through the surgical incisions and progressive intraoperative pupil constriction did not occurred. Postoperatively, his visual acuity improved.

DISCUSSION

Several reports have described IFIS in patients with antipsychotic drug use [5-10]. In this present patient, he had taken many kinds of antipsychotic drugs. The pharmacological actions used for this patient are as follows; “perospirone” exerts strong antagonistic activities against the serotonergic-2 ($5\text{-}HT_2$) receptor, dopaminergic D_2 receptor, and histamine-1 receptor [11]; “levomepromazine” exerts moderate antagonist of the dopaminergic D_2 receptor, $5\text{-}HT_2$ receptor, and moderate blocker of adrenergic α1 and muscarinic M_1 receptors [12]; “biperiden” exerts anticholinergic effect [13]; “lorazepam” exerts agonist of the γ-aminobutyric acid (GABA) A receptors [14]; “chlorpromazine” has a relatively higher affinity for non-dopaminergic D_2 receptors [15]; “promethazine” inhibits N-methyl-$\mathcal{D}$-aspartate receptors (no action on α1-adrenergic receptor) [16]; “phenobarbital” has inhibitory effect by prolonging and potentiating the action of GABA on the GABA A receptor [17]. As above mentioned, other than the antagonistic effects on dopaminergic and/or serotonergic receptors as the main effects, many kind of antipsychotic drugs has antagonistic effects on acetylcholine, histamine, and α-adrenergic receptors as side effects.

The IFIS related to antipsychotic drugs seems less common, although use of this class of drugs is common for the treatment of schizophrenia. Subclinical IFIS caused by the α1-adrenergic blocker effect of antipsychotics, which is less intense than specific α1-blockers, and/or individual differences of sensitivity to the drugs may explain the discrepancy [5]. Although the IFIS induced by an antipsychotic drug can be relatively mild, to avoid unnecessary surgical complications, surgeons should be alert to the possibility of IFIS when

they treat patients with current and past use of this commonly prescribed group of drugs.

Disclosure

The authors have no conflicts of interest to disclose.

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