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A review of the current status of simultaneous topical and systemic beta blocker prescription

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Introduction

Topical beta-blockers are prescribed by ophthalmologists for treatment of glaucoma and systemic beta-blockers are used for various cardiovascular diseases. However, co-administration may lead to interactions and unexpected outcomes. An audit of the situation is necessary to quantify the issue and for planning of further action.

Objectives

(1) Audit of patients who are on both topical and systemic beta-blockers within the Department of Ophthalmology (HKWC) (2) Identify number of unexpected outcome events (3) Raise awareness of the issue and provide practical advice to improve the situation

Methodology

Patients who were prescribed topical and systemic beta-blockers simultaneously during the one-year period between 1/1/2017 to 31/12/2017 were identified using CDARS. The clinical notes within the ePR system of every identified patients were reviewed. Demographic data including age and sex, type of topical and systemic beta-blockers used, underlying cardiovascular diagnosis, respiratory diagnosis, together of adverse outcomes in terms of bradycardia, heart failure, respiratory distress and syncope-like episodes were documented.

Result

A total of 2967 patients were prescribed with topical beta-blockers in 2017, out of which 623 patients were on systemic beta-blockers simultaneously. 90 patients have underlying arrhythmia, 28 patients have pre-existing diagnosis of heart failure and 11 patients have underlying peripheral vascular diseases. 4 patients have underlying obstructive airway disease. There were 16 cases of documented bradycardia, 23 cases of heart failure exacerbation and 30 cases of syncope-like episodes within 2017.

Only a minority of patients on topical beta-blockers were on systemic beta blockers and mostly well tolerated. Adverse outcomes were uncommon. However this still carry significance as (1) the expected efficacy of topical treatment may be undermined (2)

systemic absorption of topical treatment may cause side effects and (3) economic implication of wasted treatment and admission episodes generated. However, it would be difficult to establish the causal relationship. In addition no single parameter will help to predict which patient will be more susceptible. To further increase the level of safety constant awareness, interdisciplinary collaboration and computer crosschecking system may be helpful.