A cardiovascular benefit of ophthalmic beta-blockade


I would like to report the case of an 85-year-old lady who presented with a history of new presyncope episodes, associated with visual symptoms and without obvious precipitants. She described her vision ‘closing in like a tunnel’ and at these times felt faint and unsteady. The symptoms resolved gradually on sitting, which she did, to prevent herself falling. There were no neurological sequelae to any episode. She had previously been using 0.25% Timolol eye drops for bilateral glaucoma following a right drainage procedure and left laser trabeculoplasty. She was switched, because of a wheeze associated with starting Timolol, to Betaxolol eye drops. The presyncope symptoms started after this substitution. She had started to feel more unwell a few days prior to the consultation, this time without resolution of the symptoms.

On examination, she was in atrial fibrillation with a rate of 120 bpm and reported this as a change from her home monitoring which had showed a pulse rate of 80 bpm. Her blood pressure, as recorded on her home monitoring unit had not changed compared with the preceding months. Her symptoms were felt to be due to poorly controlled atrial fibrillation with suboptimal rate control leading to presyncope. A regular oral beta blocker was associated with complete resolution of all her symptoms.

The use of ophthalmic preparations of beta blockers for the management of glaucoma is common, and the potential cardiovascular and respiratory side effects due to beta-blockade are well documented. The pharmacokinetics of ophthalmic administration of medication is more complicated than that of oral or intravenous administration and topical administration can result in rapid systemic absorption and significant effects despite relatively low doses. The systemic availability of ophthalmic Timolol in particular, is comparable to intravenously administered Timolol [3] whilst Betaxolol in contrast is more variable in its systemic absorption [4].

In this patient, the systemic absorption of ophthalmic Timolol had successfully controlled the rate of her atrial fibrillation. This effect was lost with the substitution to Betaxolol, leading to her arrhythmia-related presyncope episodes. Substitution of eye drops with the intention to avoid systemic absorption and subsequent bradycardia and syncope may not be without its own complications.

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Letters to the Editor

Research on the prevention of fall injuries still makes prediction for practice difficult

SIR—Several papers published recently address the increasing problem of falls among the elderly [1]. Medical and social costs of fall-induced injuries are even larger when considering work, sports and leisure activities in the total population. A wide range of subject characteristics have been shown to predict falls [2]. Much uncertainty remains still, as to which factors determine fall risk and which factors should be the primary targets for intervention. In spite of large investments in research on both causes and prevention, the problem is not affected much in practice. The benefits of research for public health need some further understanding.

First, due to the scarcity of resources in society, we will be forced to define the most vulnerable groups at risk. Several studies show that a minor group of patients with repetitive injuries do not follow the Poisson distribution including a fear of falling [3]. Thus, there is a need for a shift towards more longitudinal studies using a follow-up design to increase understanding of cost-effective interventions in practice.

Second, there is obviously a lack of multidisciplinary research between home- and work-related fall-induced injuries. Research on risk groups at work or among the elderly
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does not consider each others’ results [2, 4]. There are also inconsistencies when recommending countermeasures on the individual level, e.g. the value of strength and balance training. Others are more cautious and emphasise the relative importance between muscular and neural factors, i.e. if the latter are of prime importance, strength training not likely to be the most effective approach [4]. A revised state-of-the-art programme is recommended in order to stimulate collaboration and new ideas.

Third, it is difficult to understand and predict interventions without including community organisation and the daily context of human activity. There is, thus, a need for more context-dependent research programmes [5]. Only a few elements such as gravity, friction and kinetic energy are in fact context-independent. Current limitations are compliance when transforming results from bio-mechanic research into a social context, and how to meet and handle shifting traditions and job cultures both in private homes and among the home help services. Accordingly, there is a need to develop criteria as to how to define best practice. Often, case studies are recommended to solve the problem of lack of context-dependent knowledge. One advantage is the closeness to real-life situations. However, the critical issue is the strategic selection of critical cases, i.e. what constitutes a critical case and how to identify such cases [5]. A shift towards more case intervention studies focusing on contextual variation is warranted. So, there is still a long way to go before we can make reliable predictions on how to prevent fall-induced injuries in real-life situations.

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doi:10.1093/ageing/afm027
Published electronically 22 March 2007

Diagnosis of UTI amongst elderly patients in hospital (Age and Ageing 2006; 35(Supp 1): i24)

SIR—While the authors of this survey of practice [1] are correct in their conclusion that the elderly are probably over-treated with antibiotics for urinary tract ‘infection’, we feel that they reach this for the wrong reasons. It is well established that, in the presence of symptoms, a monocuscule of as few as $10^9$ colony-forming units per cubic centimetre of urine (cfu/mm$^3$) can be clinically significant [2]. Most laboratory cell counters are set to detect $10^5$ cfu/mm$^3$, below the conventional definition of $10^5$, but are sufficiently insensitive to miss up to 50% of positive samples. This probably accounts for much of the perceived discrepancy in their result. Dipstick testing for leucocyte esterase and urinary nitrates only has an acceptable rate of detection/exclusion when the tests are used in combination and in conjunction with other tests [3]. Thus, a positive test in a single category would not be expected to be of great diagnostic utility.

The cardinal features of urinary tract infection; dysuria, haematuria, an increased urinary frequency and urinary urgency may sometimes be absent in older people; occasionally, a worsening of established urinary incontinence may be the only feature. However, symptoms should guide treatment. The prevalence of asymptomatic bacteriuria in older women may reach 25% [4] and there is no evidence that treating this is of benefit [5]. Whilst examination of a mid-stream specimen of urine is essential for a hospital-acquired infection, community-acquired infection can be treated with appropriate antimicrobial agents in the absence of such a sample, as waiting for the results only delays treatment.

Many older people admitted to hospital are treated in the absence of symptoms or have non-specific diagnoses attributed to their ‘UTI’ and receive antibiotics. This probably accounts for much of the over-treatment observed in this study.

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