Letters to the Editor


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Impaired glucose tolerance and the risk of ischaemic stroke: another focus

SIR—We applaud Kaarisalo et al. in their efforts to link the risk of impaired glucose tolerance (IGT) with the increased likelihood of ischaemic stroke [1]. Their study demonstrates that statistically significant risk factors for stroke in elderly people are previous transient cerebral ischaemic attacks (TIA) or stroke, diabetes mellitus (DM) and atrial fibrillation (AF). However, strokes tended to happen more often in the IGT group than in the normal group, but the difference was not statistically significant [1]. This has particular inference from a cardiovascular perspective, given the role of deranged glucose metabolism and the risk of new-onset AF [2, 3]. Indeed, previous reports have demonstrated that high glucose levels had a positive significant association with the risk of AF. Nearly a decade ago, Psaty et al., using step-wise models, demonstrated that high glucose levels were associated with AF [2]. Of note, the Framingham study found that DM was a significant independent risk factor for AF with an Odds Ratio of 1.4 and levels of blood glucose were more important predictors than the diagnoses of DM [2]. More recently, in a large-scale study involving a far larger number of patients over a long duration of 10 years, Movahed et al. [2] showed that AF occurred in 43,674, (14.9%) patients with DM versus 57,077, (10.3%) in the control group (P<0.0001). Atrial flutter occurred in 11,852, (4%) patients with DM versus 13,554, (2.5%) of the control group (P<0.0001) and using multi-variant analysis, DM remained independently associated with AF with an OR = 2.13, (95% CI: 2.10–2.16; P<0.0001) and atrial flutter (OR = 2.20, 95% CI: 2.15–2.26; P<0.0001).

The fluctuating level of glycaemic control may be a putative association, if we take into consideration the perspectives on epidemiological and pathophysiological links between DM and AF [3].

We should not forget that the pathophysiology of complications in the setting of DM is multifactorial, and in addition to the high coexistence of ‘conventional’ cardiovascular risk factors (such as hypertension, dyslipidaemia and obesity) in patients with DM, there are other processes such as urine albumin excretion, endothelial damage/dysfunction, and chronic inflammation which are implicated [4]. These are closely inter-related processes that develop in parallel, progress with time, and are strongly and independently associated with the risk of death in a background of deranged glycaemic control [4]. Interestingly, the prothrombotic risk of DM in the setting of AF (Figure 1) has been demonstrated to be of significant relevance lately, and DM has been found to independently contribute to the endothelial damage/dysfunction seen in patients with AF [5]. The presence of DM as an additive risk factor for endothelial damage/dysfunction may reflect the increased prothrombotic and vascular risk seen in this high-risk population [1, 5], hence IGT will undoubtedly and invariably be pertinent in the context of risk factors for stroke.

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Figure 1. The association between impaired glucose tolerance, diabetes mellitus (DM), atrial fibrillation (AF), the prothrombotic risk and stroke.
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 presyncopal 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 presyncopal 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 unit 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. Substitution of eye drops with the intention to avoid systemic absorption and subsequent bradyarrhythmia and syncope may not be without its own complications.

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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