



EDITORIAL

Improving drug prescription in elderly diabetic patients

Ideas para mejorar la prescripción farmacológica en los pacientes ancianos con diabetes

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Nowadays, there is no doubt about the ageing of our societies, with the inversion of the population pyramid. There's no doubt either about the current epidemic of obesity and bad nutritional habits that have resulted in an increase of diabetic patients in the world. And the union of these epidemics to the ageing of the populations has led to an increase of diabetes in older adults.^{1,2}

There are several pathophysiological peculiarities of type 2 diabetes in the older people, but mainly there are differences in the ground where diabetes is developed. Older adults are not simply adults with many years but they exhibit relevant phenotypic characteristics that make them quite different to non-older adults. They range from hygienic-dietary habits to the frequent comorbidity, frailty and even disability usually found in these patients.³ These are some of the reasons why it is much better to speak about older patients with diabetes instead of the more "classical" approach consisting in talking about diabetes in the elderly.¹

So, the spectrum of comorbidities in patients with diabetes is very broad, including both cardiovascular comorbidities and cancer.⁴ Cluster analysis is a technique that describes how variables tend to occur in conjunction with each other.⁵ Regarding DM comorbidity it is important to know which clusters of diseases/comorbidities are associated to DM. In the REPOSI study diabetes is present in 7 clusters, most of which also include cardiovascular problems.⁶ A Spanish study which compares multimorbidity in a population with diabetes versus patients with another chronic disease,⁷ shows that the prevalence of multimorbidity is greater among DM patients, reaching the figure of 10 relevant diseases associated to diabetes. The issue of this high number of comorbidities in older adults with DM is highlighted by the concomitant presence of polypharmacy, opening the floor for Adverse Drug Reactions and a low adherence.

It is worthy to say that the high amount of drugs in diabetic patients with comorbidities is often based on current guidelines for each of the individual diseases and not to a theoretically poor practice. Accordingly, in a study with a means of 8 drugs per day

in diabetic patients, over 97% of the prescriptions corresponded to recommendations found in guidelines.⁸

A recent study had the objective of detecting potentially serious drug-disease and drug-drug interactions for drugs recommended by NICE clinical guidelines for diabetes, heart failure, and depression in relation to 11 other common conditions and drugs recommended by NICE guidelines for those conditions.⁹ At the time evaluated (2009) Diabetes NICE Guides recommended 4 first line drugs and 19 second line drugs. There were 32 potentially serious drug-disease interactions between drugs recommended in the guideline for type 2 diabetes and the 11 other conditions compared with six interactions for drugs recommended for depression and 10 for drugs recommended for heart failure. Most of them were interactions between the recommended drug and chronic kidney disease. Potentially more serious drug-drug interactions were identified between drugs recommended by guidelines for each of the three index conditions and drugs recommended for the 11 other conditions: 133 drug-drug interactions for drugs recommended in DM, 89 for depression, and 111 for heart failure.⁹ This risk of presenting interactions was indeed higher in people with diabetes, even when following the guidelines.

With these facts in mind, it looks that in diabetic patients polypharmacy is often unavoidable, since multiple drug therapy has become the standard for most of its common comorbidities. As a consequence, the potential risk of interactions caused by polypharmacy is likely to continue rising as more therapeutic options become available. Using the traditional approach, the initial message looks somewhat pessimistic: the situation seems to be difficult to change. But in fact the real situation is the opposite: there is great room for improvement (Table 1) if we change the management from a disease-centered management to a patient-centered one and making a cautious balance between benefits and risk, useful in every patient but highly recommended in patients with not so big benefits and a high risk of adverse events, like it is the usual case in older adults.

To achieve the most suitable objectives of control it is basic to implement an individualized approach by taking into account many factors (hypoglycemia risk, disease duration, life expectancy, -comorbidities, vascular complications, as well as patient's preferences and resources and support system.^{10,11} After the global

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Table 1

Potential strategies to improve medical management in older people with diabetes mellitus.

-ACHIEVE SUITABLE THERAPEUTIC TARGETS -AVOID HYPOGLYCEMIAS -DRUG REVIEW: DIABETES MEDICATIONS AND GLOBAL TREATMENT. -IMPLEMENT IMPROVEMENT STRATEGIES: IN THE COMMUNITY, IN THE HOSPITAL, IN THE NURSING HOME -MULTIDISCIPLINARY TEAMS -INVOLVE THE PATIENT AND THE FAMILY
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evaluation we must follow the recommendations of scientific societies. As an example, in older people we should never search glycated hemoglobin values lower than 7.^{1,2,12,13}

Do physicians follow the recommendations? What does happen in the real world? In a recent study Lipska et al.,¹⁴ reported that although the harms of intensive treatment probably exceed the benefits for older patients with complex/intermediate or very complex/poor health status, most of them reached tight glycemic targets and inadequate drugs with a high risk of hypoglycemia are often used in order to achieve these stringent and harmful objectives.¹⁵ So it is not really surprising that drug-induced hypoglycemia is still a frequent cause of hospital admission in elderly patients.¹⁵ To improve medication management in elderly patients with diabetes, we must know all the possible drugs very well, in addition to its many possible combinations. This applies not only to diabetes drugs, but also to medications used to control other common associations, such as cardiovascular risk factors or cognitive disorders or anticoagulant drugs, like warfarin, currently used for many indications.¹⁶ We should not forget about the possibility of other less known drug interactions such as those induced by tramadol, which increases the risk of hypoglycemia.¹⁷ When we check the global treatment of patients with DM, using validated criteria may help. Our group evaluated the prevalence of inappropriate prescription using the Beers and STOPP criteria to assess potentially inappropriate medicines in an observational and prospective study carried out in 7 internal medicine services of Spanish hospitals in 672 patients aged 75 and older.¹⁸ The START criteria and ACOVE-3 quality indicators were used to assess potentially prescribing omissions. The mean number of prescription drugs used by DM patients was 12.6 vs. 9.4 in non-DM patients ($p < 0.001$) with almost three quarters (74.2%) of DM patients using 10 or more drugs. We found higher percentages of inappropriate prescriptions in DM patients compared to the rest.¹⁸ It seems clear that in addition to individual strategies, global strategies are also basic to improve the treatment for diabetes in older people. An integrated health management model is effective in improving the health of older adults with diabetes.^{11,19} Along these lines, the role of different regulatory and pharmacovigilance agencies will be essential, as they will keep us informed about alerts and warnings. And not only doctors and nurses should be involved but also pharmaceutical consultants as part of multidisciplinary teams.²⁰ Accordingly, to assess information in a comprehensive way for different interventions and professionals involved in the care of these patients is mandatory. And it is also basic to elaborate some evidence-based checklist to use more specifically in older patients with diabetes. Of course we must also take into account the general recommendations to improve therapeutic adherence to drugs regime in older patients.²¹

In conclusion, DM is very common in older adults, a group of patients that show different characteristics and risks,²² mainly in some settings of care, like nursing home. There are multiple possible interventions to carry out in order to improve diabetes treatment, in different settings of care ranging to the community to the nursing homes.^{23,24} Unfortunately, there are still some very entrenched bad habits which are difficult to remove such as

sliding scales, still widely used and associated with a high percentage of fingersticks, and worse glycemic control but a similar rate of hypoglycemia²⁵.

Now the time for doing the appropriate things in this highly vulnerable and complex group of patients has come, with the involvement of the patients, their carers and their proxies²⁶.

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