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## SYMPOSIUM. POLYPATHOLOGY

### Polypathology, polypharmacy, medication regimen complexity and drug therapy appropriateness<sup>☆</sup>

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**Abstract** Polypathological patients are usually elderly and take numerous drugs. Polypharmacy affects 85% of these individuals and is not associated with greater survival. On the contrary, polypharmacy exposes these individuals to more adverse effects, such as weight loss, falls, functional and cognitive impairment and hospitalizations. The complexity of a drug regimen covers more aspects than the simple number of drugs consumed. The galenic form, the dosage and the method for preparing the drug can impede the understanding of and compliance with prescriptions. Both polypharmacy and therapeutic complexity are associated with poorer adherence by patients. To prevent polypharmacy, reduce complexity and improve adherence, the appropriate use of drugs is needed. Proper prescribing consists of selecting drugs that have clear evidence for their use in the indication, which are appropriate for the patient's circumstances, are well tolerated and cost-effective and whose benefits outweigh the risks. To improve the drug prescription, periodic reviews of the drugs need to be conducted, especially when the patient changes doctor and during healthcare transitions. The Beers and STOPP/START (Screening Tool of Older Person's potentially inappropriate Prescriptions/Screening Tool to Alert doctors to the Right Treatment) criteria are effective tools for this improvement. Deprescription for poly-medicated polypathological patients that considers their clinical circumstances, prognosis and preferences can contribute to a more appropriate use of drugs.

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**PALABRAS CLAVE**

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**Pluripatología, polifarmacia, complejidad terapéutica y uso adecuado de la medicación**

**Resumen** Los pacientes pluripatológicos suelen ser ancianos y consumen muchos fármacos. La polifarmacia afecta a un 85% de los mismos y no se asocia con mayor supervivencia. Al contrario, los expone a más efectos adversos, como pérdida de peso, caídas, deterioro funcional y cognitivo, y hospitalizaciones. La complejidad del régimen medicamentoso incluye más aspectos que el simple número de medicamentos consumidos. La forma galénica, la frecuencia de las dosis, o la forma de preparar la medicación pueden complicar la comprensión y el seguimiento de las prescripciones. Tanto la polifarmacia como la complejidad terapéutica se asocian con una peor adherencia de los pacientes. Para evitar la polifarmacia, la complejidad y mejorar la adherencia es necesario un uso adecuado de la medicación. Prescribir bien consiste en seleccionar aquellos medicamentos de los que hay claras evidencias para su empleo en la indicación, que son adecuados a las circunstancias del paciente, bien tolerados, coste-efectivos y en los que los beneficios de su uso superan a los riesgos. Para mejorar la prescripción de medicamentos es necesario llevar a cabo de forma periódica revisiones de la medicación, especialmente cuando el paciente cambia de médico y en las transiciones asistenciales. Los criterios de Beers y los STOPP/START (*Screening Tool of Older Person's potentially inappropriate Prescriptions/Screening Tool to Alert doctors to the Right Treatment*) son herramientas eficaces para ello. La desprescripción en los pacientes pluripatológicos polimedcados atendiendo a sus circunstancias clínicas, pronóstico y preferencias puede contribuir a un uso más adecuado de la medicación.

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Scientific/healthcare advances and the economic and social development of recent decades, along with the implementation of preventive measures, have led to better control and approach to chronic diseases and have increased life expectancy. In Spain, one of the countries with the longest life expectancy in the world, 18.5% of the population was older than 65 years in 2015,<sup>1</sup> and it is estimated that this age group could reach 36.5% by 2051, with 15.3% of octogenarians.<sup>2</sup> With this population shift, there is an exponential increase in patients with chronic diseases, who require a high number of drugs for their treatment, which represents a major impact on healthcare expenditures. In the National Survey of Chronically Ill Patients (*Encuesta Nacional de Pacientes Crónicos*) conducted in Spain in 2014, 71.8% of the individuals aged 65 years or older had some type of chronic disease, increasing in frequency with age.<sup>3</sup> Although chronic diseases are not exclusive to the elderly, the number and prevalence of these diseases increase with age, such that individuals older than 65 years account for the majority of pharmaceutical expenditures.

Chronically ill patients entail greater complexity in their management. Therapies that are intensified as the disease progresses, along with therapies indicated for other comorbid conditions, inevitably require a progressive addition of drugs. Among chronically ill patients, poly pathological patients constitute a special group, due not only to the number of chronic diseases but also to their progression and complexity, with greater morbidity and progressive functional impairment, which necessitates an increased consumption of healthcare resources.<sup>4</sup> It has been estimated that the prevalence of poly pathology in the general

population of Spain and, in particular, among those older than 65 years is 1.38% and 5%, respectively. In the departments of internal medicine and geriatric medicine, the rates are 31% and 44%, respectively.<sup>5,6</sup>

### Polypharmacy

Approximately 40% of adults older than 65 years take between 5 and 9 drugs daily, and 10% take more than 10, with a mean consumption of 4.2–8 drugs per individual.<sup>7</sup> If we follow the clinical practice guidelines, the treatment of a patient with multiple diseases involves numerous drugs and nondrug measures. Therefore, the profile of the poly medicated patient would be an elderly individual with multiple associated chronic diseases. Several studies have shown that poly pathological patients consume a mean of 8 drugs and that polypharmacy is present in more than 85% of patients.<sup>8,9</sup> In fact, complications resulting from polypharmacy in these patients are more frequent and severe. This situation is due to the physiological changes in pharmacokinetics that cause a reduced renal and hepatic clearance and an increased volume of distribution for liposoluble drugs, as well as a variation in the response of the target organs, which are more sensitive to various drug groups, such as cardiovascular drugs, anticoagulants and psychotropics.<sup>10</sup>

Polypharmacy is defined as the use of multiple drugs by a patient, including over-the-counter drugs, supplements and vitamin complexes. The minimum number of drugs necessary to define this term is controversial in the literature, ranging from 3 to 6 drugs. The most widely accepted number is 5

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