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Short communication

Osteoporosis as an adverse effect of long-term oral glucocorticoid use in asthma therapy – a questionnaire-based survey

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Introduction

Asthma is one of the most common chronic respiratory diseases, characterised by chronic airway inflammation, bronchial hyperresponsiveness, and variable airflow limitation. In patients with severe asthma or frequent exacerbations, oral glucocorticoids are still used as part of therapy, despite being associated with multiple adverse effects. Long-term systemic glucocorticoid therapy can lead to significant complications, including osteoporosis, which increases fracture risk and negatively affects quality of life (Kapszewicz et al., 2026). The aim of this study was to assess the awareness of asthma patients regarding osteoporosis as a possible adverse effect of prolonged oral glucocorticoid use, to evaluate the extent of counselling provided by healthcare professionals, and to examine preventive measures undertaken by patients.

Materials and methods

A cross-sectional survey was conducted using an anonymous questionnaire distributed online via *Google Forms* from July to October 2024. Included were asthma patients who reported using oral glucocorticoids in their therapy. A total of 201 participants completed the questionnaire after being informed about the topic, the anonymity, and the voluntary nature of participation. The questionnaire consisted of 21 questions and collected socio-demographical data, information about oral glucocorticoid use, as well as knowledge of adverse effects (with an emphasis on osteoporosis) and preventive measures. Data were processed and analysed using *IBM® SPSS* statistics software.

Results and discussion

Among the 201 participants, the largest proportion belonged to the age group 35–50 years (36.3%). In the study by Mahdy et al. (2017), the majority of participants were younger, most commonly aged 25–35 years (44.0%). Regarding oral glucocorticoid therapy, prednisone was the most frequently reported medication (35.3%), followed by dexamethasone (30.8%), methylprednisolone (18.9%), and hydrocortisone (14.9%), which was consistent with the studies by Bjornsdottir et al. (2024) and Normansell et al. (2016). The majority of participants obtained oral glucocorticoids through a prescription

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in pharmacies (91.0%), while a smaller proportion reported obtaining them without a prescription (7.5%) or through over-the-counter purchase (1.5%). Contradictory results were shown in the study by van der Meer et al. (2022), where 77.8% of participants did not have a prescription. Most of the participants (36.3%) started using oral glucocorticoids in asthma therapy between 35 and 50 years of age, while 47.8% of them were using oral glucocorticoids for less than one year. Opposite findings compared to our survey were reported in the study by Alhammadi et al. (2023), where the highest number of participants started using oral glucocorticoids at the age of 18–25 years, and only 12.7% of them were using these medications for more than six months. A significant proportion of participants demonstrated limited awareness of osteoporosis as a possible adverse effect of prolonged oral glucocorticoid use (78.1%). Nevertheless, 37.3% reported the presence of symptoms related to osteoporosis. Only 19.9% of participants were informed about the ways of preventing osteoporosis by a healthcare professional. In the study by Qutob et al. (2023), 41.1% of participants knew about the adverse effects of oral glucocorticoids, 8.9% of them experienced osteoporosis-like symptoms, but healthcare providers were not at the forefront of providing information about osteoporosis and its prevention (38.8%). The discrepancies between studies regarding osteoporosis-related symptoms among oral glucocorticoid users may be explained by several factors. Since osteoporosis risk increases with age, older cohorts are more likely to experience bone-related symptoms and complications (Compston, 2023). Glucocorticoid-induced osteoporosis is primarily associated with prolonged use, especially in high-risk individuals, and an increase in fracture risk is seen within 3–6 months of initiation (Compston, 2018). Differences in the timing of initiation of therapy (younger vs older age groups) may also affect the degree of cumulative risk over time. Osteoporosis-related symptoms are often self-reported and may reflect nonspecific musculoskeletal complaints (back pain or joint pain), which may be confounded by other comorbidities. Therefore, studies relying on subjective symptom reporting may overestimate osteoporosis manifestations compared with studies using objective diagnostic methods, such as bone mineral density testing.

Conclusion

Results indicate insufficient counselling and a lack of patient education regarding glucocorticoid-induced osteoporosis. Since oral glucocorticoids remain necessary in certain asthma patients, healthcare professionals, especially pharmacists, should provide consistent information about risks, prevention strategies, and monitoring.

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