治疗慢性肾脏病伴高磷血症的降磷类药物临床综合评价Δ

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中图分类号　R969；R692　　**文献标志码**　A　　**文章编号**　1001-0408（2026）14-1918-07
DOI　10.6039/j.issn.1001-0408.2026.14.20

摘　要　目的　对降磷类药物治疗慢性肾脏病（CKD）伴高磷血症开展药品临床综合评价，为临床用药提供决策依据。**方法**　检索符合纳排标准的相关研究，基于已有研究结果开展有效性、安全性、经济性综合评价，从填补临床空白等3个方面分析创新性，从技术适宜性等2个方面评估适宜性，并结合昆明37家医疗机构调研数据与医保、集采信息分析可及性。**结果**　共纳入10篇Meta分析和2篇药物经济学研究：有效性上，3类降磷药（含钙磷结合剂、非含钙磷结合剂、钠/氢交换体3抑制剂）均可有效降低血磷；含钙磷结合剂升血钙更明显，司维拉姆降全段甲状旁腺激素效果优于含钙磷结合剂，含铁磷结合剂可改善铁代谢与贫血相关指标；安全性上，含铁磷结合剂胃肠道不良反应发生率最高，碳酸镧略低；经济性上，司维拉姆比含钙磷结合剂、碳酸镧更具经济优势。创新性上，非含钙磷结合剂弥补了含钙磷结合剂易诱发高钙血症的不足，含铁磷结合剂满足合并缺铁性贫血患者的需求，替那帕诺降磷机制具有创新性。适宜性上，3类降磷药各方面均有较好的适宜性。可及性上，司维拉姆的医疗机构配备率最高，替那帕诺暂无配备；3类药物均已纳入医保，碳酸镧与司维拉姆集采后价格下降，可负担性提升。**结论**　CKD伴高磷血症优选非含钙磷结合剂，其中优先推荐司维拉姆；胃肠道不耐受者可选用碳酸镧，合并缺铁性贫血者优先选用含铁磷结合剂，传统方案控制不佳或不耐受者可选用替那帕诺，不推荐含钙磷结合剂作为长期用药首选。

关键词　降磷类药物；慢性肾脏病；高磷血症；含钙磷结合剂；非含钙磷结合剂；钠/氢交换体3抑制剂

Comprehensive clinical evaluation of phosphate-lowering drugs in the treatment of chronic kidney disease with hyperphosphatemia

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ABSTRACT　OBJECTIVE To conduct a comprehensive clinical evaluation of phosphate-lowering drugs in the treatment of chronic kidney disease (CKD) with hyperphosphatemia, and to provide evidence-based support for clinical drug decision-making. **METHODS** Relevant studies meeting the inclusion and exclusion criteria were retrieved, a comprehensive evaluation of efficacy, safety and economics was conducted based on existing study results. Innovation was analyzed from three aspects including filling the clinical gap, and suitability was assessed from two aspects including technical suitability. Accessibility was evaluated based on the survey data from 37 medical institutions in Kunming, combined with information from the *National Reimbursement Drug List* and national centralized drug procurement. **RESULTS** A total of 10 meta-analyses and 2 pharmacoeconomic studies were included. In terms of efficacy, all three categories of phosphate-lowering drugs (calcium-based phosphate binders, non-calcium-based phosphate binders, sodium-hydrogen exchanger 3 inhibitors) effectively reduced serum phosphorus levels. Calcium-based phosphate binders elevated serum calcium levels more significantly; sevelamer was superior to calcium-based phosphate binders in reducing intact parathyroid hormone levels; iron-based phosphate binders improved iron metabolism and anemia-related indicators. In terms of safety, iron-based phosphate binders had the highest incidence of gastrointestinal adverse reactions, followed by lanthanum carbonate. In terms of economics, sevelamer demonstrated economic advantages over calcium-based phosphate binders and lanthanum carbonate. In terms of innovation, non-calcium-based phosphate binders addressed the clinical limitation of hypercalcemia associated with calcium-based phosphate binders; iron-based phosphate binders met the treatment needs of patients with comorbid iron deficiency anemia; tenapanor exhibited an innovative phosphorus-lowering mechanism. In terms of suitability, all three categories showed good suitability in various aspects. In terms of accessibility, sevelamer had the highest availability rate, while tenapanor was not yet available in medical institutions. All three categories have been included in the *National Reimbursement Drug List*; the prices of lanthanum carbonate and sevelamer decreased substantially following centralized procurement with improved affordability. **CONCLUSIONS** For CKD patients with hyperphosphatemia, non-calcium-based phosphate binders are preferred, among which sevelamer is recommended as the first-line choice. Lanthanum carbonate may be considered for patients with gastrointestinal intolerance; iron-based phosphate

Δ **基金项目**　云南省卫生健康委员会医学领军人才培养计划（No. L-2018012）；昆明市医学科技领军人才培养计划［No.2023-SW（领军）-04］

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