Biphosphonates in Advanced Prostate and Renal Cell Cancer -- Current Status and Potential Applications

Abstract: Objective: This review summarizes recent findings on the therapeutic benefits of biphosphonates in patients with advanced prostate or renal cell carcinoma (RCC). The role of biphosphonates in ADT-induced osteoporosis and delay of skeletal-related events (SREs) in metastatic bone disease is discussed. A brief overview on the proposed modes of action is given. Methods: Literature search of PubMed documented publications and abstracts from meetings. Results: Among the biphosphonates currently available, zoledronic acid is the only one known to be capable of delaying SREs in RCC and prostate cancer patients. Zoledronic acid counteracts cancer treatment-induced osteoporosis in men with prostate malignancies. The antitumor activity of biphosphonates found in vitro and in vivo is intriguing and has to be further assessed in clinical studies. Conclusion: Due to its unique properties, zoledronic acid is a breakthrough in the management of metastatic bone disease in patients with advanced prostate cancer and RCC. It significantly improves the patients’ quality of life, drastically prolongs time to first SRE, and showed a positive but not significant effect on survival.

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