Objective: To evaluate systematically the current endocrine treatment options for patients with biochemical recurrence after radical prostatectomy or radiation therapy for localized prostate cancer. Methods: Literature search of PubMed documented publications and abstracts from international meetings. Key items included timing and type of salvage hormone therapy, length of its application and handling of side effects. Results: The majority of patients with isolated prostate-specific antigen (PSA) relapse are not candidates for salvage treatment with curative intent. The PSA threshold that triggers initiation of hormonal therapy is debatable and should be based also on pretreatment risk assessment. Intermittent androgen suppression is an emerging concept to circumvent the unresolved controversy of early versus deferred endocrine therapy. Since the tumor load at time of recurrence is low, peripheral androgen blockade with an antiandrogen and a 5α-reductase inhibitor is an acceptable first choice. In case of progression, addition of a LHRH analogue would be the next step. Antiandrogen withdrawal and second-line antiandrogens are clinically of limited value.

Conclusions: Biochemical-only progression after definitive treatment in curative intent is different from objective or even symptomatic relapse and allows for sequential hormonal therapy with a variety of compounds.