recommended. Following radionuclide therapy, withholding hemi-body radiation until blood counts have stabilized is advised.

6. Complete blood counts should be performed within 2 weeks prior to starting ^{89}Sr-chloride, ^{153}Sm-EDTMP, or ^{223}Ra-Cl_2 therapy and for subsequent treatments with ^{223}Ra-Cl_2.

a. ^{89}Sr

Low blood counts are a relative contraindication. A complete blood count (CBC) should be obtained within 2 weeks prior to the start of therapy. The following thresholds should be considered prior to initiating therapy: hemoglobin (Hb) > 9 g/dL, white blood cell (WBC) count > 3,500/μL, platelet count > 100,000/μL. According to EANM guidelines, in select cases, more liberal thresholds of a platelet count > 60,000/μL and WBC count > 2,400/μL may be considered, provided coagulation tests exclude disseminated intravascular coagulation (DIC). Blood counts typically recover within months of treatment, either partially or completely, and should be monitored (*5,67*).

b. ^{153}Sm-EDTMP

CBC should be obtained within 2 weeks prior to the start of therapy. The following thresholds should be considered prior to initiating therapy: platelet count > 60,000/μL (preferably >100,000/μL), WBC count > 2,400/μL (preferably >5,000/μL), absolute neutrophil count (ANC) > 2000/μL, Hb > 10 g/dL (*1*). Blood counts typically recover after treatment and should be monitored.

c. ^{223}Ra-Cl_2

1. CBC should be obtained within 2 weeks prior to start of therapy. The following thresholds should be considered prior to initiating therapy: ANC ≥ 1.5 x 10^9 /L, platelet count ≥ 100 x 10^9 /L, Hb ≥ 10 g/dL.

2. Prior to subsequent treatments, ANC should be confirmed as ≥ 1 x 10^9 /L and platelet count ≥ 50 x 10^9/L (*11*).

7. Treatment with ^{223}Ra-Cl_2 concomitantly with abiraterone plus steroids is contraindicated in the treatment of prostate cancer as described earlier, and the patient's medication list should be screened for such agents. There are no known contraindications to combining hormone therapy with ^{153}Sm-EDTMP at this time. The patient's medication list may also be screened for bone health agents (e.g., denosumab or zoledronic acid) and referral may be made for consideration of such agents.

8. The approved indications for ^{89}Sr-chloride, ^{153}Sm-EDTMP, or ^{223}Ra-Cl_2 stipulate symptomatic/painful bone metastases. ^{89}Sr, ^{153}Sm-EDTMP, and ^{223}Ra-Cl_2 have demonstrated benefit in decreasing pain, with only ^{223}Ra-Cl_2 having a survival benefit (*44*).

9. Active DIC may be a risk factor for severe thrombocytopenia after therapy (*68*). Appropriate testing for this condition is important if there is any doubt as to the cause of thrombocytopenia. Moreover, if laboratory values are thought to be in flux, repeat blood work should be performed to confirm adequate counts prior to treatment.

10. Renal excretion of ^{89}Sr-chloride and ^{153}Sm-EDTMP suggests caution in dosing patients with renal dysfunction. Hence, severe renal dysfunction (glomerular filtration rate < 30 mL/min) should preclude treatment with ^{89}Sr-chloride or ^{153}Sm-EDTMP (*6,69*). ^{223}Ra-Cl_2 has only limited renal excretion. Dose adjustment is not necessary in patients with mild to moderate renal impairment (creatinine clearance < 60 mL/min). Limited data are available for patients with severe renal dysfunction (creatinine clearance < 30 mL/min) (*11*), although adequate renal function was an eligibility criterion for the ALSYMPCA trial (*44*).