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52. Slovak Republic Ministry of Health Guidelines for the Diagnosis of Glucocorticoid-induced Osteoporosis
Slovak Republic Ministry of Health Guidelines for the Diagnosis of Glucocorticoid-induced Osteoporosis

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The Slovak Republic Ministry of Health under § 45, Paragraph 1, Subparagraph b), of Act No. 576/2004 on healthcare and related services, and upon the amendment and completion of certain acts, as amended, issues this guideline:

Article I
Subject

This guideline provides a summary of the recommendations for the prevention and treatment of glucocorticoid-induced osteoporosis.

Article II
Glucocorticoid-induced Osteoporosis

1. Bone mineral density (BMD) begins to decline rapidly within the first 3 months of glucocorticoid use in more than half of patients resulting in glucocorticoid-induced osteoporosis. It is essential to initiate therapy promptly in these patients. Treatment is more aggressive than in postmenopausal osteoporosis.

2. Glucocorticoid-induced bone loss is related to:
   a) Glucocorticoid dose
   b) Treatment duration

3. Glucocorticoid dose risk is considered:
   a) Prednisone cumulative dose of 2.7 grams/year
   b) Prednisone dose per day of 7.5 milligrams or more
   c) Doses stated in Paragraph 1 and 2 of this Article taken for more than 3 months

Article III
Healthcare Facilities and Healthcare Professionals

For the purpose of this guideline:

a) Healthcare facility\(^1\):
   1. Specialised medical clinic/office – Internal Medicine, Rheumatology or Orthopaedic surgery
   2. Inpatient healthcare facility – departments of Internal Medicine, Orthopaedic surgery, and Rheumatology
   3. Centralized medical services – clinical biochemistry and hematology laboratories

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\(^1\) § 7 Act No. 576/2004 Body of Laws on healthcare, healthcare professionals, health care professional association, and upon amendment and completion of certain acts, as amended
b) Authorized medical person – physician specialised in at least one of the following specialisations:
   1. Endocrinology
   2. Rheumatology
   3. Orthopaedic surgery

**Article IV**

**Methods for Assessing Skeletal Health**

Patients receiving long-term glucocorticoid therapy should undergo the following investigations:

a) Whole-body densitometry for patients receiving the following doses of glucocorticoids:
   1. Prednisone dose per day greater than 7.5 mg for more than 3 month
   2. Cumulative dose of 2.7 grams per year

b) Laboratory investigations including the following parameters:
   1. aa) Calcium, phosphorous, alkaline phosphatase, serum creatinine
      bb) 24-hour urine collection for calcium and phosphorous excretion (or urine excretory fractions)
   2. Serum and urine bone markers:
      aa) Bone-resorption markers:
          Total urinary deoxypyridinoline (DPD), Urinary collagen type I cross-linked C-telopeptide (CTx), Urinary collagen type I cross-linked N-telopeptide (NTx), Serum carboxy-terminal telopeptide of type I collagen (ICTP)
      bb) Bone-formation markers:
          Serum bone-specific alkaline phosphatase (BSAP), Serum osteocalcin (OC), Serum procollagen I carboxy-terminal propeptide (PICP), Serum parathormone, 25-hydroxy vitamin D

   3. The following markers may be used to monitor treatment effectiveness:
      aa) One marker of bone resorption
      bb) Combination of one marker of bone resorption and one marker of bone formation

**Article V**

**Glucocorticoid-induced Osteoporosis Treatment Algorithm**

The treatment algorithm applies to patients meeting the criteria listed under Article IV, Section (a), Paragraph 1 and 2 of this guideline:

1. The following universal preventive measures should be followed pursuant to Article VII of glucocorticoid-induced osteoporosis guidelines
2. a) Bone mineral density measurement:
   If the T-score (i.e. the number of standard deviations above or below the mean value for the healthy young adult reference data) in area of the:
I. Lumbar spine and femur is up to \(-2.0\) SD (the standard deviation), repeat measurement after one year of glucocorticoid treatment

II. Lumbar spine or femur is \(-2.0\) SD or more, initiate treatment with bisphosphonates

III. Femur (femoral neck or total femur) or area of spine is \(-2.9\) SD or more, initiate treatment with teriparatide

b) If there is evidence of osteoporotic fracture (vertebra, proximal femur, forearm), initiate treatment with teriparatide

**Article VI**

**Glucocorticoid-induced Osteoporosis Treatment Algorithm in Males Younger than Age 50 years and Premenopausal Females**

The treatment algorithm for males younger than age 50 years and premenopausal females is the same as defined in Article V, but in place of T score, the Z score (i.e. the number of standard deviations below the mean for an age-matched population) should be evaluated.

**Article VII**

**Precautionary Measures**

It is recommended to follow precautionary measures in patients receiving long-term glucocorticoid therapy:

a) Administer the lowest dose of glucocorticoids and minimize the duration of administration

b) Exclude risk factors (listed in Appendix)

c) Maintain an active lifestyle with adequate sun exposure

d) Maintain body mass index above 19 kg/m\(^2\)

e) Maintain calcium intake at 1,000 - 1,500 mg/day

f) Maintain Vitamin D intake at 800 IU/day

**Article VIII**

**Effective**

The guidelines for glucocorticoid-induced osteoporosis are effective as of November 15, 2009.

Richard Rasi
Minister of Health
Appendix to Guidelines No.16874/2009-OZS

Osteoporotic Risk Factors in Patients with Glucocorticoid-induced Osteoporosis

Factors that increase a person's risk of osteoporosis include:

a) History of maternal femoral neck fracture
b) History of vertebral, proximal femoral, or forearm fracture following low impact trauma
c) Body mass index less than 19 kg/m²
d) Diseases causing or contributing to osteoporosis: anorexia nervosa, malabsorption, primary hyperparathyroidism, diffuse connective tissue diseases, rheumatoid arthritis, chronic diseases causing intestinal inflammation, post-transplantation syndrome, chronic renal insufficiency, hyperthyroidism, prolonged immobilization, Cushing syndrome, chronic hepatopathy, myeloproliferative disorders, genetic and other metabolic bone disorders
e) Height loss of more than 3 cm
f) Chronic drug use (anticoagulants, anti-epileptics, thyroid hormones, cytostatics)
g) Age: females older than age 65 years and males older than 70 years