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Increased bone fragility over time in women with chronic hypoparathyroidism: Real-world data from the HypoparaNet Italian Cohort

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CONFLICT OF INTEREST

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☒ **I have the following potential conflicts of interest to report**:

- ☒ Research Contracts
- ☒ Consulting
- ☐ Employment in the Industry
- ☐ Stockholder of a healthcare company
- ☐ Owner of a healthcare company
- ☒ Grants
- ☒ Speaker

☐ **I declare that I have no potential conflict of interest.**

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Introduction

- Hypoparathyroidism is a rare clinical condition characterized by abnormally low levels of parathyroid hormone (PTH) due to reduced or absent activity of the parathyroid glands, and leading to abnormally low calcium levels and increased phosphorus values in the blood.

- Etiology of hypoparathyroidism is variable, and it includes neck surgery and/or neck irradiation causing removal or damage of parathyroid glands, autoimmune diseases attacking the parathyroids, chronic low blood level of magnesium (hypomagnesemia), and inherited forms of non-syndromic or syndromic defects of parathyroid activity.

- Bone health is an important clinical aspect to be considered in patients with chronic hypoparathyroidism (cHP), whose skeleton is exposed both to the cHP-induced alteration of bone mass and microarchitecture, and to the natural occurrence and progression of bone mass loss due to ageing, specifically in post-menopausal women.

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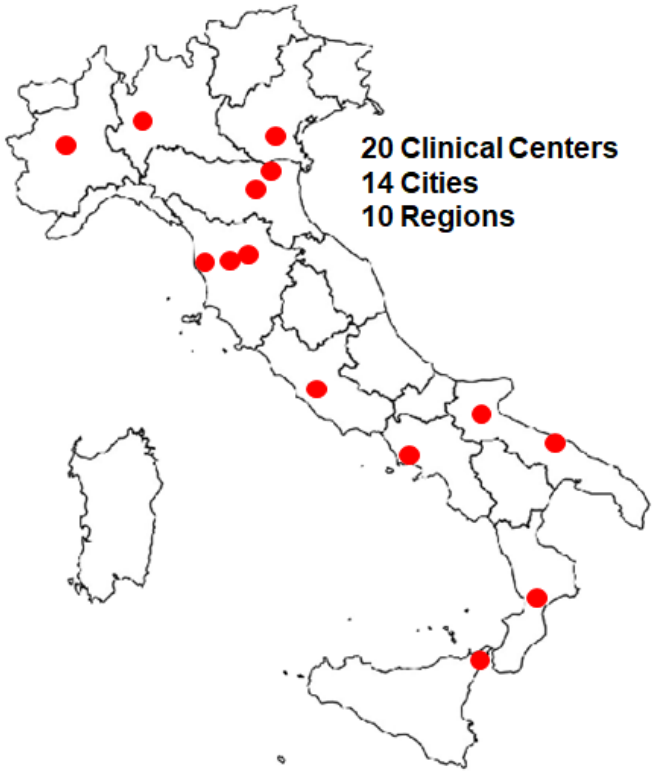
HypoparaNet

- Italian multicenter database retrospectively collecting data on patients with cHP
- Started in March 2014
- 20 Clinical Centers in Italy (16 Centers for Endocrinology and 4 Centers for Endocrine Surgery)
- 509 cHP patients (110 men and 399 women)
- cHP etiology included 363 post-surgical cases (71.3%), 78 idiopathic cases (15.3%), and 64 patients with a genetic background (12.6%).



Patients and Methods

- In the HypoparaNet cohort, a dual x-ray osteodensitometry (DXA) was available in only n=173 cHP patients (34.0%), 142 women (142/399; 35.6%) and 31 men (31/110; 28.2%).
- In this retrospective study, we specifically assessed the prevalence of bone mass reduction (osteopenia or osteoporosis) in relation to menopause (or age below or above 50 years) in female cHP patients from the HypoparaNet database. The study included n = 45 female patients at or below 50 years (F≤50) and n = 97 postmenopausal female patients above 50 years (F>50).
- Osteoporosis was defined as the presence of one or more of the measured bone sites presenting a T-score (or a Z-score for individuals < 50 years) ≤ -2.5. Osteopenia was defined as the presence of one or more of the measured bone sites presenting a T-score (or a Z-score for individuals < 50 years) between -1.0 and -2.5.

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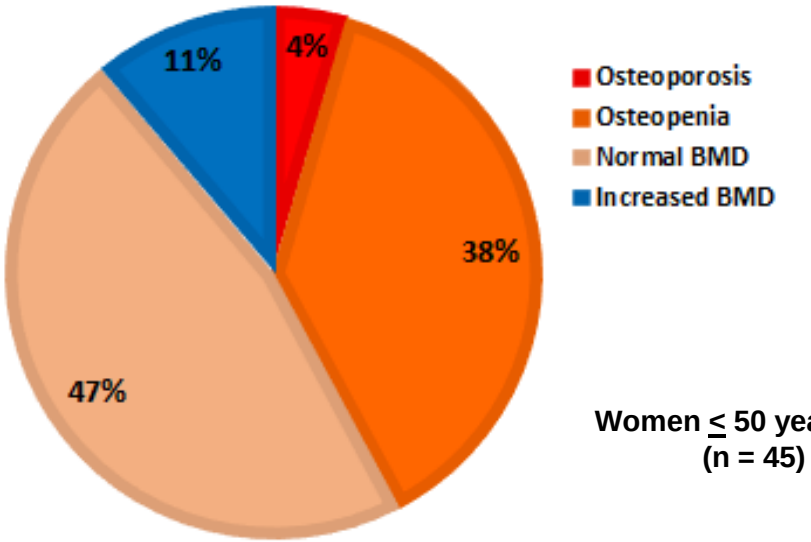
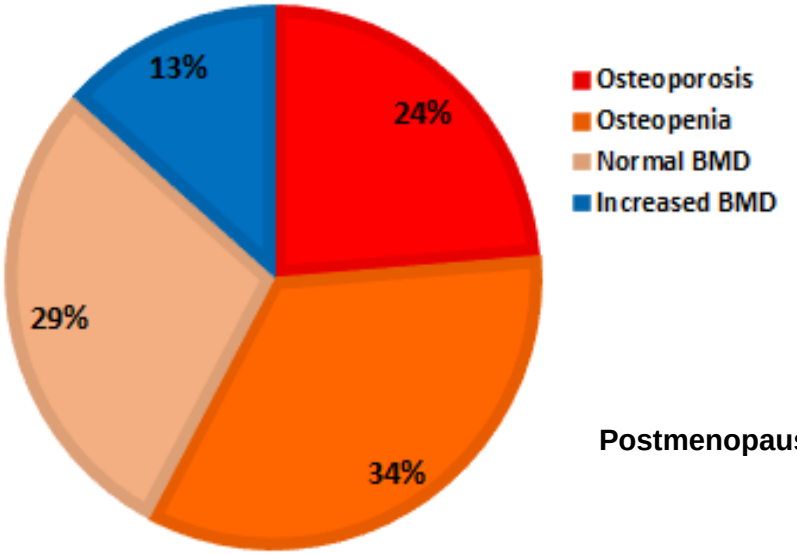
Results

- Female patients (n=45) at or below 50 years (F≤50) and female patients (n=97) above 50 years (F>50) showed comparable mean values of serum and urinary parameters of parathyroid function and mineral metabolism.
- The overall prevalence of osteopenia was high, and it resulted to be comparable in the F≤50 and F>50 subgroups, averaging about 38% and 34%, respectively. The prevalence of osteoporosis was clearly higher in the F>50 group with respect to the F≤50 group, averaging about 4% and 24%, respectively.



Women ≤ 50 years (n = 45)



Postmenopausal women > 50 years (n = 97)

Conclusions

- These real-world data indicate that nearly half of cHP women, who represent the majority of the hypoparathyroid population, had osteopenia or osteoporosis, and that prevalence of osteoporosis notably increases after 50 years.

- In this context, new treatment modalities (including PTH replacement therapy) for this patient population should aim at restoring a balanced bone turnover, preventing further bone loss and granting a better bone health at any age.