

DISCUSSION

We mention three topics related to this case. The first one is the fact that in adults with osteogenesis imperfecta, with or without medication, a dramatic impact on fractures is presented lifelong, regardless circumstances of daily life, because of genetic alteration of collagen structure (10,11). However, a particular intervention of daily habits is required. In this case, the arterial hypertension and spontaneous episode of vertigo might have been a collateral cause of fall. Situational risk factors, as displayed in Figure 2, are key elements in osteoporotic patients' education, considering a particular high risk of osteoporotic fractures (12). Another topic is associated to the question which is the best selection of medication against osteoporosis on an adult male with osteogenesis imperfecta suffering a new fracture; a part from bisphosphonates, and denosumab, romosozumab utility is yet to be determined (13,14,15).



FIGURE 2. Potential circumstances related to the risk of fall (12)

We also mention the fact that the patient' son inherited his condition. The first evaluation for osteoporosis was done in 2020, at the age of 27 years; he never received any medication against osteoporosis as a child or teenager, also suffering of multiple

fractures. He also started medication with alendronate 70 mg/week and 5,600 U/week without a new fracture during the first year of this regime (Table 4 and Table 5).

TABLE 4. 27-year old male with osteogenesis imperfecta: bone metabolism evaluation

| Parameter | Value February 2020 | Value August 2021 | Normal ranges | units |
|--------------|---------------------|-------------------|---------------|-------|
| 25OHD | 13.3 | 30.4 | 30-100 | ng/ml |
| calcitonin | 4.2 | 4.01 | 8.31-14.3 | pg/ml |
| CrossLaps | 0.49 | 0.51 | 0.158-0.442 | ng/ml |
| Osteocalcin | 51.09 | 57.06 | 24-70 | ng/ml |
| P1NP | 43.13 | 43.13 | 15.13-58.59 | ng/ml |
| Parathormone | 34.43 | 33.99 | 15-65 | pg/ml |

TABLE 5. The measurements done with GE Lunar Prodigy central DXA device: 26-year old patient with osteogenesis imperfecta and an associated history of multiple pediatric fragility fractures

| | Region | Z-score (SD) | BMD (g/cm ²) | TBS |
|------|-------------------|--------------|--------------------------|-------|
| 2020 | Lumbar L1-4 | -4 | 0.689 | NA |
| | femoral neck | -0.5 | 0.988 | |
| | total hip | -0.2 | 1.028 | |
| | 1/3 distal radius | -1.5 | 0.685 | |
| 2021 | Lumbar L1-4 | -4 | 0.699 | 1.228 |
| | femoral neck | 0.6 | 0.968 | |
| | total hip | -0.6 | 0.978 | |
| | 1/3 distal radius | -1.5 | 0.687 | |

*bmd=bone mineral density

CONCLUSIONS

Despite the fact that the risk of fracture on a subject with a genetic condition that directly impacts the bone status represents a game changer, the everyday circumstantial situations that cause an increased risk of fall represent strong players that need to be taken into consideration as part of patients' education.

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