

4. PTH decreases calcium levels in milk, saliva and ocular lens. This may be responsible for development of cataract in hypoparathyroidism.

Mechanism of action The PTH receptor is a G protein coupled receptor which on activation increases cAMP formation and intracellular Ca^{2+} in target cells. PTH enhances proliferation and differentiation of preosteoblasts and deposition of osteoid as well. Bone resorption predominates when high concentrations of PTH are present continuously, but intermittent exposure to low concentrations has the opposite effect.

Hypoparathyroidism Manifestations are:

Low plasma calcium levels, tetany, convulsions, laryngospasm, paresthesias, cataract and psychiatric changes.

Treatment

Calcium gluconate injection 10 % and oral calcium

For chronic hypoparathyroidism Oral calcium and Vitamin D_2

Hyperparathyroidism It is mostly due to parathyroid tumour. It produces hypercalcaemia, decalcification of bone, deformities and fractures, metastatic calcification, renal stones, muscle weakness, constipation and anorexia.

Treatment is surgical removal of the parathyroid tumour.

When this is not possible-low calcium, high phosphate diet with plenty of fluids is advised.

Cinacalcet It is an orally active calcimimetic fluorinated compound which allosterically activates the calcium sensing receptor (CaSR) on parathyroid cells and in other body tissue. The primary action is to inhibit PTH secretion and thus decrease plasma levels of PTH, Ca^{2+} and phosphate. The biological $t_{1/2}$ of cinacalcet is 30-40 hours. It is indicated in secondary hyperparathyroidism due to renal disease and in patients undergoing long-term dialysis. Cinacalcet can also be used to lower plasma Ca^{2+} in inoperable cases of parathyroid cancer.

Hypocalcaemia is a risk, and dose has to be adjusted carefully.

Teriparatide This recombinant preparation of human PTH has been recently introduced for the treatment of severe osteoporosis, has been found to increase bone mineral density in osteoporotic women..

Side effects include dizziness, headache and leg cramps.

Paget's disease and hypercalcaemia are the contraindications.

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Page 2 of 2