

Mechanistic evidence associated with the benefit of plinabulin significantly reducing bone pain in breast cancer patients (pts) treated with TAC (Docetaxel, Doxorubicin, Cyclophosphamide) and Pegfilgrastim (Peg)

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BACKGROUND

- Pts with breast cancer (BC) who receive chemotherapy (chemo) are frequently treated with granulocyte colony-stimulating factor (G-CSF) therapies including pegfilgrastim (Peg) to mitigate chemotherapy-induced neutropenia (CIN) (Molineux, 2003)
- Peg treatment is associated with bone pain in a significant number of pts (Kirshner, 2018)
- It is unknown if severity of bone pain correlates with neutropenia
- Plinabulin (Plin) is a novel, non-G-CSF agent that also prevents CIN (Blayney ASCO 2021 No. 547)
- Plin is a member of a new class of selective immunomodulating microtubule-binding agents (SIMBA)
- Treatment with Plin caused less bone pain than did Peg ($P=.01$; PROTECTIVE-1; NCT03102606) (Blayney ASCO 2021 No. 547)

OBJECTIVE

To investigate the relationships between Plin and Peg activity, bone pain, and neutropenia in pts with breast cancer (BC)

METHODS

- PROTECTIVE-2 was a randomized, double-blind study that compared Peg (n=111) to Plin+Peg (n=110) for pts with BC (Blayney ASCO 2021 No. 533)
- Patients received up to four, 21-day cycles of docetaxel 75 mg/m², doxorubicin 50 mg/m², and cyclophosphamide 500 mg/m² (TAC) with Peg 6 mg+Placebo or Plin+Peg (Peg 6 mg; Plin 40 mg)
 - Plin was given by 30-minute infusion 30 minutes after chemo
 - Peg was given subcutaneously 24 hours after chemo (Day [D]2)
- Patient reports of bone pain were collected once daily by using a validated Numerical Rating Scale (NRS) via an app installed on patients' phones
- Adverse events of bone pain were reported on case report forms
- Complete blood count and absolute neutrophil count (ANC) were assessed on Cycle (C)1, D1 (predose) and on D2, prior to the pts being administered Peg

Adding Plinabulin to Pegfilgrastim Reduces Bone Pain due to Mitigating the Depth of the ANC Nadir among Pts with BC Receiving TAC

Treatment with Plinabulin may mitigate the need for compensatory hematopoiesis and intracavitary pressure build-up resulting in bone pain sensations

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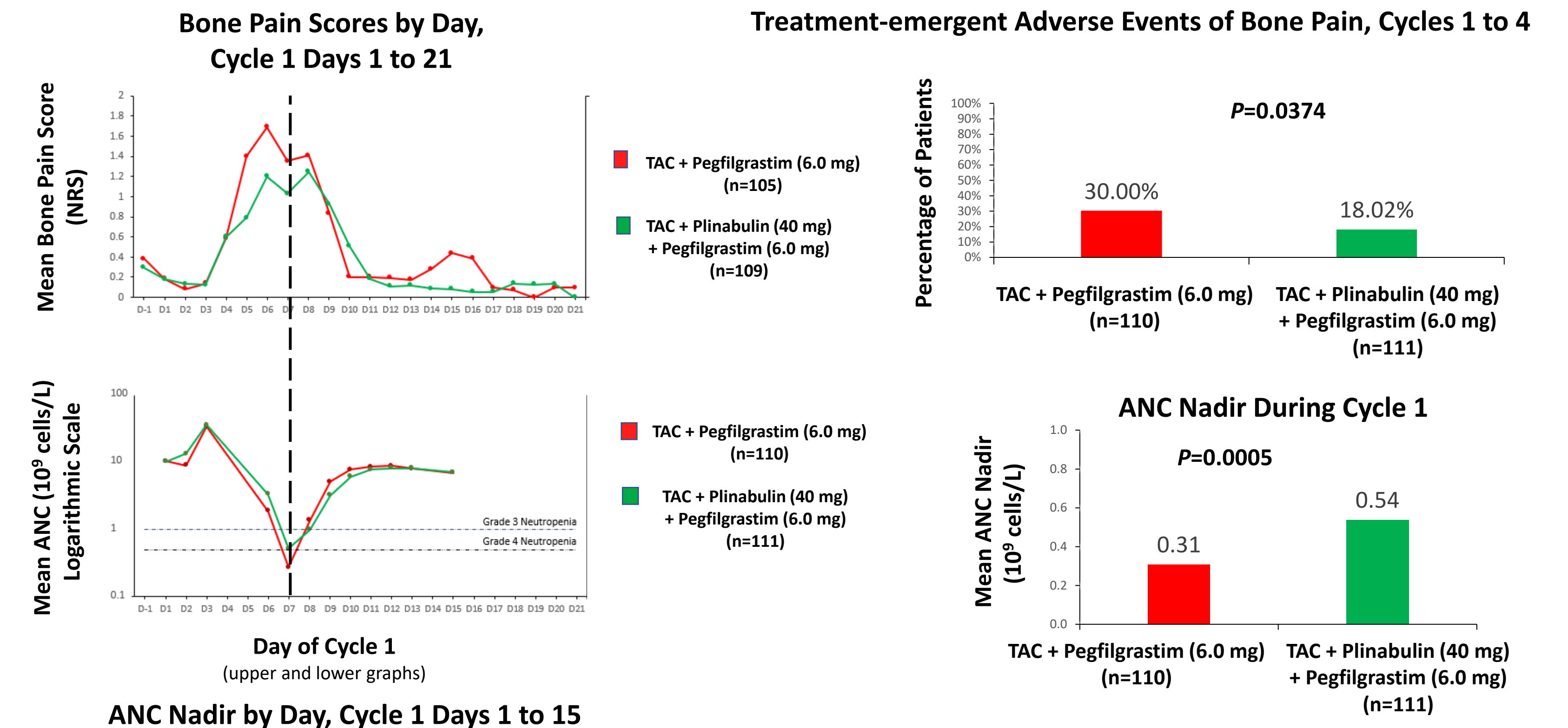
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RESULTS

Pts treated with pegfilgrastim + plinabulin experienced less bone pain than did pts treated with pegfilgrastim only



The depth of ANC nadir was statistically significantly correlated with bone pain scores

ANC, absolute neutrophil count

Correlation^a Between ANC Nadir and Bone Pain

^a robust linear regression excluding pts with a score of 0

