Data analysis of osteopenic long bone fractures in very low birth weight infant

Yu Chuan Chang¹, Teh-Ming Wang²
¹Department of Pediatrics, Chang Bing Show Chwan Memorial Hospital, Changhua, Taiwan
²Division of Neonatology, Department of Pediatrics, Taichung Veterans General Hospital, Taiwan

Background and aims

Fractures in prematurity may result from osteopenia. Five cases of long bone fractures were reported to find the clinical features and risk factors of osteopenic long bone fractures.

Methods

Five premature neonates with birth weight < 1500 gm, born at Taichung Veterans General Hospital between years of 2009 to 2014 with long bone fractures, were retrospectively reviewed. All patients was verified by X-ray to be osteopenic (Figure 2). All eligible neonates were examined for serum parameters, duration of parenteral nutrition, concomitant medication and co-morbidities.

Results

The median (range) gestational age was 26 weeks (24-27) and the median (range) birth weight was 658 gm (500-750). The median (range) chronological age when fracture occurred was 79 days (65-110). Two of five neonates had fractures greater than 1 site. The initial presentation of all patients was painful swelling of affected site with irritable cry.

The percentage of diuretics use, cholestasis, hypocalcemia, bronchopulmonary dysplasia, hypophosphatemia, necrotizing enterocolitis, sepsis and mortality were illustrated in figure 1. The median (range) alkaline phosphatase level measured was 823 IU/L (611-1488) and the median (range) duration of total parental nutrition was 92 (69-167) days.

Conclusion

Very low birth weight infants (VLBWI) with risk factors for osteopenic fractures should be monitored for osteopenia and encourage early enteral feeding with adequately nutritional supplement to prevent such complication.

Figure 2
Left humerus fracture in one case showing “thin bones” with metaphyseal cupping and fraying (arrow).

Figure 1 Cormobidities of osteopenic fractures in very low birth weight infants