

BUSM researcher solves mystery of 9-month-old

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A researcher from Boston University School of Medicine (BUSM) has determined that a 9-month old infant who was admitted to a local Boston hospital with seizures and a bulging soft spot was actually suffering from rickets caused by vitamin D deficiency. This case study describing the findings appear in the January 22nd issue of the *New England Journal of Medicine*.

A 9-month-old breast-fed male infant presented at a local hospital with a seizure after a few days of nasal congestion, diarrhea, and possible fever. Examination showed a bulging soft spot and a prominent forehead. Laboratory studies determined hypocalcemia, hypophosphatemia, and elevated alkaline phosphatase.

"In arriving at a diagnosis, we needed to consider the causes of seizures and the consequences of breast feeding without vitamin supplementation," said article author Michael Holick, MD, PhD, director of the General Clinical Research Center and professor of medicine, physiology and biophysics at BUSM and senior author of this case study.

According to Holick, who is an internationally recognized expert in vitamin D and skin research, this child had marked hypocalcemia, which could have caused his seizure. "Hypocalcemia has numerous causes and although rickets is a rare cause for this condition, it did merit consideration," he added.

Holick also pointed out that the child had received breast milk

exclusively as his major nutrition for almost 9 months, which could result in several nutritional deficiencies, including iron and the fat soluble vitamins A, D, and K. Vitamin D deficiency as well as rickets have become resurgent in this country in recent years, particularly in infants who are solely breast fed.

"In addition, the mother was of African descent, and her dark skin puts her at risk for vitamin D deficiency, thus increasing the breast-fed child's risk of vitamin D deficiency," said Holick. There is essentially no vitamin D in human breast milk, on average about 25 IU per liter, meaning this child's mother would have needed to ingest at least 2,000 to 4,000 IU of vitamin D per day in order to transfer enough of the vitamin in her milk to satisfy the infant's requirement," added Holick.

Source: Boston University

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