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Vitamin D supplement use in care home residents in Northern Ireland

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Vitamin D is an essential micronutrient for health, playing a key role in calcium absorption and bone metabolism[(1)]. Vitamin D deficiency can result in bone loss and an increased risk of osteoporosis, falls and fractures which are common within the ageing individual[(1)]. Further benefits of vitamin D include its role in supporting the immune system[(2)]. Those residing in care homes are at greater risk of vitamin D deficiency owing to poor dietary intake and a lack of exposure to sunlight decreasing the cutaneous synthesis of vitamin D[(3)]. To ensure optimal status, vitamin D supplementation may be particularly important for care home residents. This study aimed to investigate vitamin D supplement usage in nursing home residents and explore its association with vitamin D status.

A total of 87 care home residents (aged ≥65 years) from eight care homes across the Western Health and Social Care Trust, Northern Ireland, were selected as part of a larger observational study. Information on calcium/vitamin D supplement usage and history of osteoporosis was taken from the participants' medical records. Data on 25-hydroxyvitamin D (25(OH)D) concentrations were available in 69 of the participants and was compared between supplement and non-supplement users. Vitamin D status cut-offs were based on guidance from the National Institute for Health and Care Excellence (NICE): 25-hydroxyvitamin D (25(OH)D) concentrations <25 nmol/L (deficient), 25–50 nmol/L (insufficient), and ≥50 nmol/L (sufficient).

Participants (40.2% males and 59.8% females) had a mean±SD age of 83 ± 8 years and BMI of 27.9 ± 7.4 kg/m2. Of the 87 residents, 41 (47.1%) were receiving vitamin D supplements. Mean 25(OH)D concentration of all participants was 49.52 ± 35.58 nmol/L. For residents taking supplemental vitamin D, 90.2% were prescribed an 800 IU dose of vitamin D and 4.9% were prescribed a 400 IU dose. Vitamin D supplement users had a significantly higher vitamin D status compared to non-users (73.23 ± 26.20 nmol/L vs 27.78 ± 28.56 nmol/L respectively, $p \leq 0.0001$). 65.9% of those taking a supplement had sufficient 25(OH)D concentrations, as compared with only 13% of non-supplement users. Likewise, 50% of participants not taking a supplement had deficient 25(OH)D concentrations, compared with only 2.4% of those prescribed vitamin D. A previous diagnosis of osteoporosis was observed in 51.2% of supplement users. In total, 57.1% of residents diagnosed with osteoporosis were co-prescribed bisphosphonates with vitamin D supplementation indicating ongoing management of osteoporosis, albeit some 25.0% diagnosed with osteoporosis were on no form of vitamin D supplementation.

Residents on supplementation had a significantly higher vitamin D status and were more likely to be sufficient compared to non-supplemented residents. Given the high prevalence of vitamin D deficiency in non-supplement users there is a need for public health guidelines to include specific recommendations for older adults in residential care in terms of vitamin D supplementation for the prevention of deficiency.

References

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