

Depression Symptoms and Vitamin D Level in Advanced Cancer Patients: Did All Measurements Correlate Similarly?

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Background:

Correlation between vitamin D deficiency and different depression measures are not known despite vitamin D deficiency is associated with depression among advanced cancer patients.

Objectives:

To assess the correlation between vitamin D deficiency and different depression measures, including:

- Hospital Anxiety Depression Scale (HADS-Chinese Cantonese version)
- Geriatric Depression Scale (GDS)
- Edmonton Symptom Assessment System (ESAS) – depression item

Methods:

This was a subgroup analysis of a retrospective cross-sectional single centre study, which was decided to assess the prevalence of vitamin D deficiency in advanced cancer patients. Participating patient's physical and psychological distress were assessed using ESAS and HADS. Patients who had GDS performed within 1 week of study enrolment would be recruited in this subgroup analysis. Spearman's rank correlation coefficient (ρ) were used to identify the correlation of ordinal data.

Result:

Among 100 participants of original study, 42 patients had GDS documented within 7 days when HADS was performed and they were enrolled into this subgroup analysis. Their mean age was 68.5 years old, 33 (78.6%) were male. Two patients had co-existing depression and none had anxiety. The median Palliative Performance Scale was 60 and the median age-adjusted Charlson Comorbidity Index was 8.5.

Their mean vitamin D level was 46.3nmol/L (range: 7-115, standard deviation 25.6) Twenty-four (57.7%) had vitamin D deficiency as defined as level less than 50nmol/L.

Vitamin D level was negatively correlated with HADS-depression subscale ($\rho=-0.373$, $r=0.015$) but not HADS-total score, GDS as well as ESAS-Depression subscale ($\rho=-0.303$, -0.200 and -0.123 , $p=0.054$, 0.203 and 0.437 respectively).

Methods:

Vitamin D level was correlated with depression symptoms severity in terms of HADS but not GDS or ESAS-Depression. Further studies are needed to address which domains of depression are affected by vitamin D deficiency.

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Demographics of the cohort (n42)			
Sex	Male	33	(78.6%)
	Female	9	(21.4%)
Age	Mean (SD)	68.5	(12.2)
PPS	Median (IQ)	60	(50,80)
CCI	Median (IQ)	8.5	(7.25, 10.25)
Vit D	Mean (SD)	46.3	(25.6)
HADS-A	Median (IQ)	5.5	(2.5,7.0)
HADS-D		11.0	(4.25,17)
HADS-T		18.0	(6.0, 23.)
GDS	Median (IQ)	3.5	(2.0, 8.0)
ESAS	Median (IQ)		
Anxiety		0	(0,3.25)
Depression		0	(0,3)
Severity of Vitamin D deficiency			
Severe (< 12.5)		3	(7.1%)
Moderate (12.5-29)		10	(23.8%)
Mild (30-49)		11	(26.2%)
Adequate (50 or above)		18	(42.9%)

	Rho	p
HADS-D	-0.373	0.015
HADS-T	-0.303	0.054
GDS	-0.200	0.203
ESAS-D	-0.123	0.437



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