ANEMIA AS AN EXPLANATORY FACTOR FOR FATIGUE IN PATIENTS TREATED WITH CHEMOTHERAPY

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Aim: Fatigue (F) and anemia (A) are common adverse reactions in patients (pts) treated with chemotherapy. The relationship between fatigue and anemia is complex and still unexplained. This study aimed to investigate the time dependant relationship between hemoglobin (Hb) levels and patient’s reported fatigue.

Methods: Patients (pts) included in the PROCHE program between 2008 and 2011 at the Georges Pompidou hospital (Paris, France) were eligible. Pts were contacted before each chemotherapy (CT), and data for F (patient’s reported outcome according to CTC-NCI grading: 0=none, 1=mild, 2=moderate, 3=severe, 4=3+long-term condition) and A (hemoglobin (Hb) level (g/dl): 0= >12, 1=[10-12[, 2=[10-8[, 3=[9; 8[ and 4=<8) were recorded from the first to the last cycle. A linear mixed model was used to assess the longitudinal relationship between Hb and F. CT cycle, age, primary tumor type and disease stage were introduced as fixed effects. We also investigated introduction of random effects.

Results: 5585 records of F and Hb were collected at the same time point in 661 pts who had at least 1 F and 1 Hb assessments. Median age=64.9y, sex-ratio=1.1, most frequent tumor type (%): lung: 25, breast: 21, urogenital: 21, gynecological: 13, H&N: 12. Localized disease=467 (70.6%), metastatic=194 (29.4%). Median number of cycles received=4 (IQR: 4). Median follow-up was 26.7m (25.5-27.9). Patient’s reported F grade (%): 0=24.7, 1=45.2, 3=24.2, >3=5.9. Hb (g/dl)(%): >12=31.5, [10-12]=53.7, <10=14.9. Fatigue and Hb trajectories were strongly related and Hb was the strongest predictor for occurrence of F. Significant covariates were (“Type 3 tests of fixed effects”): Hb: F=81.3 (p < 0.0001), age: F=39.8 (p < 0.0001), cycle order: F=3.0 (p < 0.0001). This model was both internally (bootstrap resampling) and externally validated on 197 new patients.

Conclusion: This study confirmed through internal and external validation the longitudinal relationship between fatigue and anemia over the chemotherapy period. Anemia was found to be the main explanatory factor of fatigue.

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