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Relationship Between Quality Of Life And Health-Related Measures Including Symptoms, Biochemical Markers And Tumor Burden

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Objective: Our objective was to examine quality-of-life (QOL) in patients with neuroendocrine tumors (NETs), using two disease-specific questionnaires, the validated Norfolk QOL-NET and European EORTC QLQ-C30/GI.NET-21 and to correlate QOL measures to symptoms, tumor burden, serotonin and Chromogranin A (CgA).

Methods: De-identified data from the Norfolk QOL-NET and EORTC QLQ-C30/GI.NET-21 questionnaires, simultaneous data on tumor burden, biochemical status and symptoms were extracted. Nonparametric correlations were used to explore the relationship between total QOL scores from both questionnaires, each individual domain of the Norfolk QOL-NET, tumor burden, biochemical markers and symptom scores. P values <0.05 were accepted as statistically significant.

Results: A strong positive correlation was found between the total scores of both questionnaires; both questionnaires correlate with tumor burden and the carcinoid symptom score; in each, high circulating serotonin levels correlated with depression, GI symptoms and impaired physical functioning. There were none with CgA. Norfolk QOL-NET total score correlated positively with all its domains - physical functioning ($r=0.96$, $p<0.0001$), depression($r=0.73$, $p<0.001$), gastrointestinal ($r=0.78$, $p<0.001$), flushing($r=0.62$, $p<0.0003$), respiratory($r=0.65$, $p<0.0002$), positive attitude($r=0.52$, $p<0.004$), cardiovascular ($r=0.46$, $p<0.012$).

Conclusions: Both tools do well in measuring QOL in NETs and may be useful guides for therapy and responses in clinical trials. Norfolk QOL-NET captures more aspects of flushing, respiratory and cardiovascular impact. Paradoxically, correlation between circulating serotonin values and depression may reflect a CNS deficiency of serotonin, which cannot cross the blood brain barrier and is deviated into tumor biosynthesis offering an opportunity to treat NETS with precursor 5-HTP which crosses the blood brain barrier.