The effect of real-time electronic monitoring of patient-reported symptoms and clinical syndromes in outpatient workflow of medical oncologists: E-MOSAIC, a multicenter cluster-randomized phase III study (SAKK 95/06)

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BACKGROUND
Patients with advanced, incurable cancer receiving anticancer treatment often experience multidimensional symptoms. We hypothesize that real-time monitoring of both symptoms and clinical syndromes will improve symptom management by oncologists and patient outcomes.

PATIENTS AND METHODS
In this prospective multicenter cluster-randomized phase-III trial, patients with incurable, symptomatic, solid tumors, who received new outpatient chemotherapy with palliative intention, were eligible. Immediately before the weekly oncologists’ visit, patients completed the palm-based E-MOSAIC assessment (Edmonton-Symptom-Assessment-Scale, ≤3 additional symptoms, estimated nutritional intake, body weight change, Karnofsky Performance Status, medications for pain, fatigue, nutrition). A cumulative, longitudinal monitoring sheet (LoMoS) was printed immediately. Eligible experienced oncologists were defined as one cluster each and randomized to receive the immediate print-out LoMoS (intervention) or not (control). Primary analysis limited to patients having uninterrupted (>4/6 visits with same oncologist) patient-oncologist sequences was a mixed model for the difference in patients global quality of life (G-QoL; items 29/30 of EORTC-QiQ-c30) between baseline (BL) and week 6. Intention-to-treat (ITT) analysis included all eligible patients.

RESULTS
In 8 centers, 82 oncologists treated 264 patients (median 66 years; overall survival intervention 6.3, control 5.4 months) with various tumors. The between-arm difference in G-QoL of 102 uninterrupted patients (intervention: 55; control: 47) was 6.8 (P = 0.11) in favor of the intervention; in a sensitivity analysis (oncologists treating ≥2 patients; 50, 39), it was 9.0 (P = 0.07). ITT analysis revealed improvement in symptoms (difference last study visit-BL:...
intervention -5.4 versus control 2.1, P = 0.003) and favored the intervention for communication and coping. More patients with high symptom load received immediate symptom management (chart review, nurse-patient interview) by oncologists getting the LoMoS.

CONCLUSION
Monitoring of patient symptoms, clinical syndromes and their management clearly reduced patients’ symptoms, but not QoL. Our results encourage the implementation of real-time monitoring in the routine workflow of oncologist with a computer solution.

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