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PREDICTORS OF VIROLOGIC FAILURE AND HIV DRUG RESISTANCE AMONG PATIENTS RECEIVING FIXED DOSE COMBINATION STAVUDINE/LAMIVUDINE/NEVIRAPINE IN NORTHERN TANZANIA

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BACKGROUND: To understand approaches to optimizing ART in sub-Saharan Africa, we evaluated predictors of virologic failure and drug resistance among patients who had received fixed dose combination stavudine/lamivudine/nevirapine for ≥ 6 months at a referral hospital in northern Tanzania.

METHODS: Patients were administered a questionnaire and had blood drawn from June-August 2005. Validated sociodemographic, economic, adherence, access to care, and mental health questions were asked. Virologic failure was defined as HIV RNA >400 copies/mL. Factors associated with virologic failure were identified by bivariable and multivariable logistic regression analyses. HIV subtype and reverse transcriptase (RT) mutations were ascertained.

RESULTS: Among 150 patients, 94 (63%) were female, median (range) age and duration on ART were 41 (19-69) years and 12 (6-27) months respectively, and 48 (32%) patients had virologic failure. On multivariable analysis, virologic failure was associated with proportion of months on ART that was self-funded $>$ median (AOR 4.2, $p=0.002$), and self-funded ART was linked with maladherence ($r=0.54$, $p<0.001$). Disclosing HIV status to others was protective (AOR 0.13, $p=0.033$). Of 27 samples with HIV RNA concentration $>1,000$ copies/mL and for which HIV subtype could be determined, 10 (37%) were subtype A, 7 (26%) C, and 10 (37%) D. RT sequencing showed that 2 (7%) had 1 major resistance mutation, 7 (26%) had 2, and 6 (22%) had ≥ 3 . The presence of ≥ 1

mutation was associated with CD4 count <median at treatment initiation (OR 4.8, p=0.009).

CONCLUSIONS: In this Tanzanian cohort, patients who paid for ART were at risk for virologic failure mediated by mal adherence. Disclosure of HIV status, a likely marker of social coping, was protective. Presence of resistance mutations was associated with low CD4 count at ART initiation. Provision of free ART and promotion of social coping may enhance virologic suppression in this setting. Earlier detection and treatment of patients may limit development of resistance.

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