Cardiac Rehabilitation Delivery in Low- and Middle-Income Countries: Availability, Characteristics and Barriers

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BACKGROUND: Cardiovascular diseases are among the leading causes of disability in low- and middle-income countries (LMICs). Cardiac rehabilitation (CR) is an effective secondary prevention program model. The aims of this thesis are to characterize: (1) CR availability in LMICs, (2) program characteristics, and compare them with high-income countries (HICs); and (3) barriers to CR delivery.

METHODS: In this cross-sectional study, a confidential, online survey was administered to CR programs around the world. Countries were classified based on World Bank income categories. Hierarchical analyses (GLM & GEE) were performed.

RESULTS: CR programs were identified in 54/140 (38.6%) LMICs, of which programs in 47 (87.0%) LMICs participated, and 333 (53.3% response rate) surveys were completed. Services in LMICs were most often paid by patients (n=178, 55.3%, p<.001); in HICs this was government (n=444, 60.0%). Programs in HICs were more likely to offer nutrition counseling (n= 515, 80.2%), stress management (n=425, 66.4%, p<0.001) and smoking cessation (n=332, 51.8%, p<0.001) than in LMICs. Nurse-practitioners (n=88, 30.9%. p<0.001), physiatrists (n=82, 28.7%, p<0.001) and sports medicine physicians (n=50,17.3%. p<0.001) were more likely to be part of the CR team (mean=6.6±2.6 /program) in LMICs. Alternative CR delivery settings were offered in 66 (21.7%) programs; in HICs this was offered in 219 (35.4%, p<.001) programs.

Lack of patient referral (3.7/5) and lack of financial resources (3.5/5) were the greatest barriers to CR provision in LMICs, as compared to lack financial resources (3.5/5) and lack of human resources (3.3/5, p<0.001) in HICs.

CONCLUSION: CR is only available in 1/3 of LMICs, but where offered is fairly consistent with CR guidelines. Governments must develop policies to reimburse CR so patients do not pay out-of-pocket, and capacity can be increased through the increase in resources that would ensue.