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Title: Adherence to Benzathine Penicillin G Secondary Prophylaxis and Its Determinants in Patients with Rheumatic Heart Disease at a Cardiac Center of an Ethiopian Tertiary Care Teaching Hospital

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Background & Aims: Benzathine penicillin G (BPG) monthly administration is the most effective method for secondary prophylaxis against acute rheumatic fever (ARF). BPG's efficacy largely depends on adherence to treatment. This study was aimed at assessing adherence to BPG prophylaxis and its determinants among adult patients with rheumatic heart disease.

Methods: An institutional cross-sectional study design was used. One hundred and forty-five patients receiving monthly BPG at the Adult Cardiac Clinic of Tikur Anbessa Specialized Hospital (TASH) were interviewed. Their 1-year BPG prophylaxis administration record was also reviewed. The rate of adherence to BPG injection was determined by calculating the percentage of the administered drug from the total expected doses. Data were entered and analyzed using Statistical Package for Social Sciences (SPSS) software version 25. Both descriptive and logistic regression analyses were computed to describe different variables and assess factors associated with adherence, respectively. A p-value <0.05 was used to declare the association.

Results: Among a total of 145 study participants involved, the majority (76.6%) of them had been receiving BPG for the last 10 years. The average adherence rate to monthly BPG injections was 80.60% with a range of 0% to 100%. However, only 101 (69.7%) participants were taking $\geq 80\%$ of their prescribed monthly BPG prophylaxis doses. Study participants with informal education 1.10 (0.023-46.96) and secondary school education 0.89 (0.10-8.11) were more and less likely to adhere to BPG injection, respectively, when compared with those who attended higher education programs. The regression analysis showed patients who were not admitted to the hospital (AOR: 26.22; CI: 2.55-269.70; $p=0.006$) and once-admitted patients (AOR: 50.08; CI: 2.87-873.77; $p=0.007$) were more likely to adhere to their BPG injections than those admitted twice or more. The study participants who waited until the next appointment were also less adherent (AOR: 0.02; CI: 0.00-0.13; $p=0.000$) than those who went a few days later to receive the missed/late dose.

Conclusions: The adherence rate to BPG injection among RHD patients was found to be high (80.60%). Patients' admission status and their actions on missed and/or late doses were found to be important determinants of adherence in this study.