Ultra-fast remote up-titration of heart failure treatment: a safe, efficient and feasible protocol

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Introduction: Heart failure (HF) is a common disease with a significant economic burden, mainly caused by HF hospitalisations and significant morbi-mortality. Nevertheless, HF patients are still undertreated due to a clinical inertia that needs to be reversed as soon as possible using new, safe and available methods. Remote up-titrating HF medication might be the solution to rapidly optimize HF treatment to maximal tolerated doses.

Purpose: Our objective was to describe the safety, efficacy and feasibility of an ultra-fast remote up-titration protocol of HF treatment.

Methods: Patients with a recent hospitalization due to a HF decompensation and left ventricular ejection fraction \(<50%\) were retrospectively included in our database. We collected clinical, biological and treatment data at enrollment and at the end of HF medication optimization. Our protocol consisted in remote consultation (via telephone or video-consultation) every 15 days with a 72h prior blood test. Blood pressure (BP), heart rate (HR) and weight were recorded either by tele-monitoring or self-measurement.

Results: We evaluated 96 patients, 25% female with a mean LVEF at 29%, main etiology of HF was ischemic (48%) and mean NTproBNP was 2384 pg/mL. Mean BP was 112/70 mmHg, HR was 73 bpm, glomerular filtration rate (GFR) 71 ml/min and potassium concentration was 4,4 mEq/L. Ninety-four patients were initially treated with a beta blocker (BB), 29% of our cohort was treated either with an angiotensin-converting enzyme inhibitor (ACEI) or an angiotensin receptor blocker (ARB) and 59% was treated with an angiotensin receptor nephrilysin inhibitor (ARNI). A total of 72 patients were treated with a mineralocorticoid receptor antagonist (MRA) and 58 patients were also treated with an inhibitor of sodium-glucose transport protein 2 (SLGT2i). Figure 1. Median duration of tele-titration consultation was 42 days. We up-titrated BB in 50% of our patients, of which 10% were at maximum dose, making a total of 98% of our cohort under BB treatment. Sixty percent of patients under ACEI or ARB were switched to ARNI. Of the 82% of patients under ARNI, up to 50% achieved the maximal dose.

We introduced or up-titrated ARM in 41 patients, reaching the target dose in 37%. Dose variations and mean initial and final doses are shown in Figure 2.1 and 2.2

Minor adverse events that motivated a down-titration or a cessation of treatment were, hyperkalemia 5%, acute renal failure (ARF) 6%, hypotension 3% and bradycardia 2%. Non urgent hospitalization due to ARF or hyperkalemia or HF only occurred in 2 cases. The limiting factors for not reaching the optimal targeted dose were low HR in 20%, hypotension in 11%, high concentration of potassium 10% and chronic renal failure in 9%.

Conclusion: Remote up-titration of HF medication is a promising tool in the fight against clinical inertia and a fast, feasible, safe (only 2% of major events) and efficient solution to our undertreated patients.