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#### SUPPLEMENTARY DATA

#### **COLLABORATORS**

The authors acknowledge all other members of the ETIFIC research team, collaborators who took part in the study and reviewed the study protocol, developed the intervention content, obtained ethical approval from each hospital, managed the day-to-day running of the trial, and delivery of the intervention and collected the data:

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### CONTRIBUTORS

The authors as well as collaborators are members of the ETIFIC research team. Among them, there are HF-cardiologists, HF-nurses, Directors of HF and Cardiac Transplant Units, Directors of Departments of Cardiology, and Medical Directors. They have broad experience and expertise in managing HF patients and have taken part in several research studies on chronic and acute HF and heart transplant.

#### ACKNOWLEDGEMENTS

We thank the Departments of Cardiology and Health Administrators of the 20 hospitals that took part in this study: Galdakao HU- Barrualde; Bellvitge HU; Dr. Josep Trueta HU; Del Mar HU; Burgos HU; Asturias HU; Germans Trias i Pujol HU; Valladolid H U; Navarra HU; Santa María-LLeida HU; Moisés Broggi H; Virgen de la Arrixaca HU; Puerta de Hierro HU; Andújar H; Virgen de la Victoria HU; Santiago HU; Virgen de las Nieves HU; La Fe de Valencia HU; San Carlos HU; Jerez HU. \*Hospital (H), University (U).

#### TRANSPARENCY

The lead author affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned and registered have been explained.

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#### **DEFINITION GENDER/SEX**

The authors' definition of sex and gender for this article is based on the American Medical Association (AMA) guide, 11<sup>th</sup> edition:

**Sex** is defined as the classification of living things as male or female and is a "biological component, defined via the genetic complement of chromosomes, including cellular and molecular differences."

Gender comprises "social, environmental, cultural, and behavioural factors and choices that influence a person's self- identity and health."9 The term gender "includes gender identity (how individuals and groups perceive and present themselves), gender norms (unspoken rules in the family, workplace, institutional, or global culture that influence individual attitudes and behaviours), and gender relations (the relations between individuals of different gender identities)."

(Christiansen SL, Iverson C, Flanagin A, et al. AMA manual of style, a guide for authors and editors, 11th edition, 2020. Jama network. Oxford University Press).

Note from authors: although we agree in general with AMA definition and we have tried to apply it in the article, we had difficulties in choosing one term over another, sex, gender or both, due to the lack of research specifically directed to women, which could clarify the application of this definition. We did not prove but nor could we rule out the influence of both sex and gender in most of the study variables or factors influencing the titration process in women, the selection process, and some baseline characteristics. However, since the ETIFIC study was mainly an organizational trial carried out with close follow-up in HF clinics, that concluded that women, in that context, were able to achieve similar doses, no higher adverse events (even lower) and excellent clinical results, we have prioritized the term *gender* in the title, abstract, and

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conclusions. Although the accuracy of some of our applied terms may not always have been the best option, we hope that our article has raised the urgent need for future research specifically directed to women and has opened ways for a better application of the terms *sex* and *gender*.

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#### Table 1 of the supplementary data

Variables introduced in the multivariate analysis

| Variables   | BB | ACEI | MRA |
|---|----|------|-----|
|   |    |      |     |
| Sex (female vs male)  | х  | Х    | х   |
| Time (baseline vs 4 mo)   | х  | Х    | Х   |
| Group by titrating professional: HF nurse/HF cardiologist           | Х  | Х    | х   |
| No. visits with the titrating professional                          | Х  | Х    | Х   |
| Age, y  | х  | Х    | Х   |
| Patient education up to age $\leq$ 10 y                             | х  | Х    | Х   |
| Baseline dose   | х  | Х    | Х   |
| SBP at baseline   | х  | Х    | Х   |
| Heart rate at baseline  | Х  |      |     |
| Glomerular filtration rate, at baseline                             | х  | Х    | Х   |
| eGFR < 60 (no vs yes) at baseline                                   | х  | Х    | Х   |
| Potassium ≥ 5.5 mEq/L at baseline                                   |    | Х    | Х   |
| Women with mild events (yes vs no) associated with titration        | х  | Х    | Х   |
| Atrial fibrillation   | х  | Х    | Х   |
| Ischemic heart disease  | х  | Х    | Х   |
| Diabetes mellitus   | х  | Х    | Х   |
| Respiratory disease   | х  |      |     |
| NT-proBNP at baseline   | х  | Х    | Х   |
| LVEF at baseline  | x  | Х    | Х   |
| NYHAI/II/III at baseline  | х  | Х    | х   |
| Combination of 3 drugs (BB, ACEI/ARB/sac-valsartan/MRA) at baseline | х  | Х    | х   |
| Other rate-lowering drugs at baseline                               | х  |      |     |
| BP lowering drugs at baseline                                       | х  | Х    | х   |
| Psychotropic drugs at baseline                                      | x  | Х    | х   |

ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB, beta-blockers; HF, heart failure; eGFR, estimated glomerular filtration rate; MRA, mineralocorticoid receptor blocker; Nt-proBNP, N-terminal proBNP; NYHA, New York Heart Association; SBP, systolic blood pressure.

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#### Table 2 of the supplementary data

Exclusion, inclusion analysis

|   | Total       | Women                      | Men                        | Diff (95%CI)                    | Р      |
|---|-------------|----------------------------|----------------------------|---------------------------------|--------|
| Patients  |             |                            |                            |                                 |        |
| Assessed for eligibility                            | 824         | 221 (26.8)                 | 603 (73.2)                 | -46.36 (-50.76 to -41.96)       | < .001 |
| Excluded  | 504         | 138 (27.38)                | 366 (72.62)                | -45.24 (-50.94 to -39.53)       | < .001 |
| Excluded/assessed for eligibility                   |             | 138/221 (62.44)            | 366/603 (60.70)            | 1.75 (-6.04 to 9.54)            | .708   |
| Included  | 320         | 83 (25.94)                 | 237 (74.06)                | -48.13 (-55.23 to -41.02)       | < .001 |
| Analyzed at 4 mo/total analyzed                     | 289         | 76 (26.29)                 | 213 (73.70)                | -47.40 (-54.93 to -39.88)       | < .001 |
| Analyzed at 6 mo/total analyzed                     | 274         | 74 (27.01)                 | 200 (72.99)                | -45.98 (-53.78 to -38.16)       | < .001 |
|   |             | Women                      | Men                        |                                 |        |
| Included by hospital/total No. of included patients |             |                            |                            |                                 |        |
| In 6 hospitals that included $\geq$ 20 patients     | 182         | 53 (29.12) (12-            | 129 (70.88) (62-88)        |                                 |        |
|   |             | 37.20)                     |                            |                                 |        |
| In 6 hospitals that included 10-19 patients         | 91          | 18/(19.78) (6.66-          | 73 (80.22) (64-93)         |                                 |        |
|   |             | 35.71)                     |                            |                                 |        |
| In 8 hospitals that included < 10 patients          | 47          | 11 (23.40) (0-33)          | 36 (76.60) (33-100)        |                                 |        |
| Women included by hospital                          |             |                            |                            | ·                               |        |
| 6 Hospitals ≥ 20: 01: 8/25 (32); 02:16/43 (37.20)   | ; 03:13/4   | 5 (28.88); 11: 7/22 (31.8  | 31); 15: 6/22 (27.27); 16: | 3/25 (12)                       |        |
| 6 Hospitals 10-19: 10: 2/16 (12.5); 12: 3/16 (18.7  | 75);13:1/1  | 15 (6.66);14:5/14 (35.71   | );17: 4/17 (23.52); 18:3/  | 13 (23.07)                      |        |
| 8 Hospitals < 10: 04: 1/7 (14.28); 05: 1/3 (33.33)  | ; 6: 2/7 (2 | 8.57); 7 2/3 (66.66); 8:   | 3/9 (33.33); 9: 0/1 (0); 1 | 9: 0/8(0); 20: 2/9 (22.22)      |        |
| Men included by hospital                            |             |                            |                            |                                 |        |
| 6 Hospitals ≥ 20: 01: 17/25 (68); 02:27/43 (62.8    | 0); 03:32/  | /45 (71.12); 11: 15/22 (6  | 8.19); 15: 16/22 (72.73)   | ; 16: 22/25 (88)                |        |
| 6 Hospitals 10-19: 10: 14/16 (87.5); 12: 13/16 (8   | 1.25); 13:  | 14/15 (93.34); 14:9/14     | (64.29); 17: 13/17(76.48   | ); 18:10/13 (76.93)             |        |
| 8 Hospitals < 10: 04: 6/7 (85.72); 05: 2/3 (66.67)  | ; 6: 5/7 (7 | (1.43); 7: 1/3 (33.34); 8: | 6/9 (66.67); 9: 1/1 (100)  | ; 19: 8/8(100); 20: 7/9 (77.78) |        |

95%CI, 95% confidence interval; Diff, difference;

Unless otherwise indicated, the data are expressed as absolute numbers, No. (%), or No. (%) (min-max).

\* *P* value of the interaction between treatment and each subgroup.

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#### Table 3 of the supplementary data

Causes of exclusion

| Causes of exclusion  | Total<br>N = 504 | Women<br>n = 138 | Men<br>n = 366 | Diff (95%CI)               | Р*   |
|--|------------------|------------------|----------------|----------------------------|------|
| Not meeting inclusion criteria   | 441              | 116<br>(84.06)   | 325 (88.80)    | -4,73 (-12.15 to 2.67)     | .199 |
| Without need for BB titration prescription, 100% target dose or maximal tolerated dose | 140              | 43<br>(31.16)    | 97 (26.50)     | 4.66 (-4.79 to 14.11)      | .353 |
| Scheduled surgical procedure   | 113              | 24<br>(17.39)    | 89 (24.32)     | -6.93 (-15.13 to 1.27)     | .123 |
| Contraindication to BB   | 26               | 8 (5.8)          | 18 (4.91)      | 0.89 (-4.10 to 5.86)       | .863 |
| NYHA IV at discharge   | 1                | 0 (0)            | 1 (0.27)       | -0.27 (-1.08 to 0.53)      | .999 |
| Inability to attend appointments; home-care patient                                    | 65               | 20<br>(14.49)    | 45 (12.29)     | 2.20 (-5.07 to 9.46)       | .612 |
| Incapacity for self-care not compensated by<br>caregiver                               | 42               | 6 (4.35)         | 36 (9.84)      | -5.49 (-10.56 to<br>-0.42) | .071 |
| Life expectancy < 6 mo   | 34               | 5 (3.62)         | 29 (7.92)      | -4.30 (-8.97 to 0.37)      | .129 |
| Living in a nursing home   | 15               | 8 (5.8)          | 7 (1.92)       | 3.88 (-0.76 to 8.53)       | .046 |
| Unable to stand up for 20 sec on weighing scale  | 4                | 2 (1.45)         | 2 (0.54)       | 0.91 (-1.73 to 3.53)       | .649 |
| Without telephone  | 1                | 1 (0.72)         | 0 (0)          | 0.72 (-1.19 to 2.64)       | .612 |
| Consent form not signed  | 45               | 14<br>(10.14)    | 31 (8.47)      | 1.67(-4.61 to 7.96)        | .678 |
| Others   | 18               | 8 (5.8)          | 10 (2.73)      | 3.07 (1.68 to 7.81)        | .166 |

BB, beta-blockers; 95%CI, 95% confidence interval; Diff, difference; NYHA, New York Heart Association.

Unless otherwise indicated, the data are expressed as absolute numbers or No. (%).

\* *P* value of the interaction between treatment and each subgroup.

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#### Table 4 of the supplementary data

Supplementary baseline patient characteristics

| Variables (at hospital discharge)                                | Women                    | Men                       | P*   |
|--|--------------------------|---------------------------|------|
| variables (at hospital discharge)                                | n = 83                   | n = 237                   | 1    |
| Educational level  |                          |                           |      |
| Reading and writing supplied by carer                            | 2 (2.41)                 | 4 (1.69)                  | .769 |
| Reading and writing  | 18 (21.69)               | 41 (17.37)                |      |
| Up to 10 y   | 11 (13.25)               | 32 (13.56)                |      |
| Up to 14-16 y<br>Further studies                                 | 37 (44.58)<br>15 (18.07) | 102 (43.22)<br>57 (24.15) |      |
| Patients $\geq$ 70 y   | 30 (36.14)               | 53 (22.36)                | .014 |
| Lawton Instrumental Activities of Daily Living Scale score (0-8) | 26 (7.81 ± 1.27)         | 49 (6.69 ± 2.41)          | .031 |
| Lawton < 5 (men) < 8 (women)                                     | 15 (57.69)               | 21 (42.86)                | .221 |
| Lawton test, inability   |                          |                           |      |
| Use telephone  | 1 (3.33)                 | 4 (7.55)                  | .438 |
| Shopping   | 10 (33.33)               | 18 (33.96)                | .954 |
| Food preparation   | 4 (13.33)                | 36 (67.92)                | .000 |
| Housekeeping   | 3 (10)                   | 17 (32.08)                | .024 |
| Laundry  | 3 (10)                   | 36 (67.92)                | .000 |
| Transportation   | 10 (33.33)               | 13 (24.53)                | .389 |
| Responsibility for own medications                               | 10 (38.46)               | 23 (46.94)                | .482 |
| Handle finances  | 4 (13.33)                | 8 (15.09)                 | .827 |
| Cardiovascular risk factors                                      |                          | , ,                       |      |
| Hypertension   | 41 (49.4)                | 125 (52.74)               | .600 |
| Dyslipidemia   | 30 (36.14)               | 92 (38.82)                | .666 |
| Smoker   | 14 (16.87)               | 83 (35.02)                | .002 |
| Exsmoker < 1 y   | 4 (4.82)                 | 20 (8.44)                 | .281 |
| Exsmoker $\geq 1$ y  | 11 (13.25)               | 62 (26.16)                | .016 |
| Heart disease  | (,                       |                           |      |
| AV block, first-degree   | 1 (1.2                   | 4 (1.69)                  | .495 |
| Pacemaker  | 2 (2.41)                 | 5 (2.11)                  | .872 |
|  | 2 (2.41)                 | . ,                       | .550 |
| Automated implantable cardioverter defibrillator                 |                          | 9 (3.8)                   |      |
| Cardiac resynchronization therapy                                | 1 (1.2)                  | 2 (0.84)                  | .769 |
| Left ventricular ejection fraction (%) ≤ 35%                     | 69 (83.13)               | 207 (87.34)               | .338 |
| Comorbidities, Charlson index AMI                                | 16 (10.28)               | 61 (25 74)                | 226  |
|  | 16 (19.28)               | 61 (25.74)                | .236 |
| Peripheral arterial disease                                      | 2 (2.41)                 | 20 (8.44)                 | .062 |
| Stroke   | 6 (3.66)                 | 10 (6.41)                 | .259 |
| Dementia   | 1 (1.2)                  | 1 (0.42)                  | .436 |
| Chronic respiratory disease                                      | 9 (1.84)                 | 32 (13.5)                 | .533 |
| Connective tissue disease  | 3 (3.61)                 | 6 (2.53)                  | .608 |
| Gastroduodenal ulcer   | 0 (0)                    | 5 (2.11)                  | .182 |
| Mild chronic liver disease                                       | 1 (1.2)                  | 9 (3.8)                   | .243 |
| Renal failure with Cr > 3 mg/dL or in dialysis                   | 2 (2.41)                 | 7 (2.95)                  | .796 |
| Diabetes with end-organ damage                                   | 2 (2.41)                 | 11 (4.64)                 | .375 |
| Any malignancy   | 13 (15.66)               | 11 (4.64)                 | .001 |
| Leukemia   | 0 (0)                    | 1 (0.42)                  | .553 |
| Lymphoma   | 2 (2.41)                 | 1 (0.42)                  | .106 |
| Severe-moderate chronic liver disease                            | 0 (0)                    | 2 (0.84)                  | .401 |

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| Visual analog scale EQ-5D (0-100) Visual analog scale EQ-5D score | 53.89 ± 17.73                  | 58.94 ± 20.21           | .047 |
|---|--------------------------------|-------------------------|------|
| 3   | 15 (18.29)                     | 16 (6.81)               | 0.47 |
| 2   | 37 (45.12)                     | 93 (39.57)              |      |
| 1   |                                | 126 (53.62)             | .002 |
| <i></i>   | 30 (36.59)                     | 126 (52 62)             | 002  |
| Anxiety/ depression   | 5 (5.00)                       | 12 (3.17)               |      |
| 3   | 3 (3.66)                       | 12 (5.17)               |      |
| 2   | 34 (41.46)                     | 71 (30.6)               |      |
| 1   | 45 (54.88)                     | 149 (64.22)             | .194 |
| Pain/discomfort (1,2,3)   | 10 (12,13                      | 10 (4.27)               |      |
| 2 3   | <u>33 (40.24)</u><br>10 (12,19 | 65 (27.78)<br>10 (4.27) |      |
| 1   | 3947,56)                       | 159 (67.95)             | .040 |
| Daily living tasks, (1,2,3)                                       | 2047 50                        | 450 (67.05)             | 0.40 |
| 3   | 3 (3.66)                       | 3 (1.28)                |      |
| 2   | 13 (15.85)                     | 25 (10.68)              |      |
| 1   | 66 (80.49)                     | 206 (88.03)             | .169 |
| Self-care (1,2,3)   | 1 (1.22)                       | ± (0.45)                |      |
| 3   | <u>33 (40.24)</u><br>1 (1.22)  | 72 (30.77)<br>1 (0.43)  |      |
| 2   | 48 (58.54)                     | 161 (68.8)              | .201 |
| Mobility (score 1,2,3)  |                                |                         |      |
| EQ-5 D index  | 0.66 (0.24)                    | 0.76 (0.23)             | .001 |
| 75-100  | 49 (20.85)                     | 19 (23.17)              |      |
| 50-74   | 55 (23.4)                      | 25 (30.49)              |      |
| 40-50   | 36 (15.32)                     | 15 (18.29)              |      |
| <25<br>25-40  | 44 (18.72)<br>51 (21.7)        | 9 (10.98)<br>14 (17.07) | .341 |
| Total score   | 44 (40 72)                     | 0 (40.00)               | 244  |
| Minnesota Living with HF Questionnaire (0-105)                    | 52.76 ± 21.14                  | 46.76 ± 22.83           | .038 |
| Health-related quality of life                                    |                                |                         |      |
| Glycosylated hemoglobin (if diabetes mellitus) > 7.5              | 26 (35.14)                     | 9 (50)                  | .244 |
| eGFR 30-60 mL/min./1.73m <sup>2</sup>                             | 16 (19.28)                     | 49 (20.68)              | .735 |
| eGFR < 30 mL/min./1.73m <sup>2</sup>                              | 3 (3.61)                       | 5 (2.11)                |      |
| Laboratory tests  |                                |                         |      |
| BMI ≥40   | 1 (1.20)                       | 2 (0.85)                |      |
| BMI 21-39.9   | 68 (91.93)                     | 216 (91.91)             |      |
| BMI 19-20.99  | 8 (9.64)                       | 11 (4.68)               |      |
| BMI < 19  | 6 (7.23)                       | 6 (2.55)                | .077 |
| BMI, kg/m <sup>2</sup>  | 26.49 ± 5.63                   | 27.62 ± 4.64            | .072 |
|   | 28 (33.73)                     | 81 (34.18)              | .942 |
| Charlson index, adjusted by age Charlson index $\geq 3$           | 5.11 ± 1.65                    | 4.69 ± 2.03             | .048 |
| Charlson comorbidity index score, not age-adjusted                | 2.17 ± 1.31                    | 2.2 ± 1.33              | .810 |
| Metastatic solid tumor  | 1 (1.2)                        | 0 (0)                   | .091 |

ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB, beta-blockers; BMI, body mass index; BNP, B-type natriuretic peptide; EQ-5 D, EuroQol-5 Dimension; eGFR, estimated glomerular filtration rate; MRA, mineralocorticoid receptor blocker; NT-proBNP, N-terminal proBNP; NYHA, New York Heart Association; SBP, systolic blood pressure; VAS, visual analog scale.

The data are expressed as No. (%), mean ± standard deviation, or No.; median [interquartile range].

\*P value of the interaction between treatment and each subgroup.

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#### Table 5 of the supplementary data

Differences in mean relative dose at 4 months and visits in women and men between titrating professionals: HF-nurse vs HF-cardiologist

| Drug   | HF nurse         | HF cardiologist  | Diff (95%Cl)              | P <sup>a</sup> |
|--|------------------|------------------|---------------------------|----------------|
| ВВ   |                  |                  |                           |                |
| Female patients  | 40               | 36               |                           |                |
| Relative dose %  | 68.44 ± 30.7     | 55.03 ± 29.5     | 13.40 (-0.38 to 27.19)    | .057           |
| Male patients  | 104              | 109              |                           |                |
| Relative dose %  | 72.48 ± 31.7     | 56.71± 32        | 15.77 (7.17 to 24.37)     | < .001         |
| ACEI   |                  |                  |                           |                |
| Female patients  | 30               | 27               |                           |                |
| Relative dose %  | 68.75 ± 32.3     | 45.37 ± 30.6     | 23.38 (6.67 to 40.09)     | .007           |
| Male patients  | 85               | 88               |                           |                |
| Relative dose %  | 73.2 ± 28.7      | 59.43 ± 29.7     | 13.77 (5.04 to 22.56)     | .002           |
| ARB  |                  |                  |                           |                |
| Female patients  | 7                | 6                |                           |                |
| Relative dose %  | 36.85 ± 30.8     | 30.92 ± 22.8     | 5.93 (-26.95 to 38.81)    | .699           |
| Male patients  | 12               | 11               |                           |                |
| Relative dose %  | 48.93 ± 35.5     | 50.38 ± 37.5     | -1.44 (-33.22 to 30.32)   | .925           |
| MRA  |                  |                  |                           |                |
| Female patients  | 34               | 33               |                           |                |
| Relative dose %  | 83.82 ± 26.7     | 75.76 ± 28.3     | 8.07 (-5.38 to 21.51)     | .235           |
| Male patients  | 91               | 94               |                           |                |
| Relative dose %  | 66.21 ± 32.8     | 68.35 ± 30.5     | -2.14 (-11.33 to 7.05)    | .646           |
| Visits/professional                                    |                  |                  |                           |                |
| Female patients  | 39 <sup>b</sup>  | 36               |                           |                |
|  | 6.28 ± 2.95      | 2.72 ± 1.56      | 3.56 (2.48 to 4.64)       | < .001         |
| Male patients  | 103 <sup>b</sup> | 108 <sup>b</sup> |                           |                |
|  | 6.50 ± 2.80      | 2.84 ± 1.60      | 3.65 (3.03 to 4.28)       | < .001         |
| Patients ≤ 2 visits<br>with the titrating professional |                  |                  |                           |                |
| Female patients  | 3/39 (7.69)      | 20/36 (55.55)    | -47.86 (-68.79 to -26.93) | < .001         |
| Male patients  | 4/103 (3.88)     | 58/108 (53.70)   | -49.82 (-60.89 to -38.75) | < .001         |

ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB, beta blocker; 95%CI, 95% confidence interval; Diff, difference; HF, heart failure, MRA, mineralocorticoid receptor antagonist.

Unless otherwise indicated, the data are expressed as absolute numbers, No. (%) or mean ± standard deviation

<sup>a</sup>*P* value of the interaction between treatment and each subgroup.

<sup>b</sup> The number of visits was missing in 3 patients (1 woman, 2 men).

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#### Table 6 of the supplementary data

Differences in mean relative dose and visits in women and men between the professional who titrated: HF women cardiologist vs HF men cardiologist

| Drug  | HF female<br>cardiologist | HF male<br>cardiologist | Diff (95%CI)              | Ρ*     |
|---|---------------------------|-------------------------|---------------------------|--------|
| BB  |                           |                         |                           |        |
| Female patients   | 18                        | 18                      |                           |        |
| Relative dose %   | 65.28 ± 33.09             | 44.79 ± 21.09           | 20.49 (1.38 to 39.60)     | .037   |
| Male patients   | 47                        | 62                      |                           |        |
| Relative dose %   | 62.37 ± 33.34             | 52.42 ± 30.52           | 9.95 (-2.40 to 22.30)     | .113   |
| ACEI  |                           |                         |                           |        |
| Female patients   | 14                        | 13                      |                           |        |
| Relative dose %   | 48.21 ± 32.84             | 42.31 ± 29.1            | 5.91 (-18.66 to 30.47)    | .624   |
| Male patients   | 39                        | 49                      |                           |        |
| Relative dose %   | 61.35 ± 30.1              | 57.91 ± 30.27           | 3.44 (-9.23 to 16.11)     | .591   |
| ARB   |                           |                         |                           |        |
| Female patients   | 2                         | 4                       |                           |        |
| Relative dose %   | 22.75 ± 14.50             | 35 ± 27.1               | -12.25 (-60.72 to 36.22)  | .513   |
| Male patients   | 2                         | 9                       |                           |        |
| Relative dose %   | 43.75 ± 44.19             | 51.85 ± 38.76           | -8.10 (-241.98 to 225.77) | .842   |
| MRA   |                           |                         |                           |        |
| Female patients   | 17                        | 16                      |                           |        |
| Relative dose %   | 70.59 ± 30.92             | 81.25 ± 25.00           | -10.66 (-30.59 to 9.27)   | .283   |
| Male patients   | 38                        | 56                      |                           |        |
| Relative dose %   | 63.82 ± 39.50             | 71.43 ± 27.9            | 7.61 (-20.83 to 5.61)     | .255   |
| Visits/professional   |                           |                         |                           |        |
| Female patients   | 18                        | 18                      |                           |        |
|   | 3.22 ± 1.77               | 2.22 ± 1.17             | 1 (-0.02 to 2.02)         | .054   |
| Male patients   | 47                        | 61                      |                           |        |
|   | 3.43 ± 1.65               | 2.39 ± 1.33             | 1.03 (0.44 to 1.62)       | < .001 |
| Patients with $\leq 2$ visits with the titrating professional |                           |                         |                           |        |
| Female patients   | 8/18 (44.44)              | 12/18 (66.67)           | -22.23 (-59.42 to 14.98)  | .314   |
| Male patients   | 18/47 (38.30)             | 40/61 (65.57)           | -27.28 (-47.47 to -7.08)  | .008   |

ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB, beta-blocker; 95%CI, 95% confidence interval; Diff, difference; HF, heart failure, MRA, mineralocorticoid receptor antagonist;

Unless otherwise indicated, the data are expressed as absolute numbers, No. (%), or mean ± standard deviation.

\*P value of the interaction between treatment and each subgroup.

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#### Table 7 of the supplementary data

Drug prescription. Baseline to 4 months (titration period)

| Prescribed drugs/active patients at 4 months              |               | Women<br>n = 76 | Men<br>n = 213  | Diff (95%Cl)            | Ρ*   |
|---|---------------|-----------------|-----------------|-------------------------|------|
| BB  |               |                 |                 |                         |      |
| At baseline   | 73/76 (96.05) |                 | 208/213 (97.65) | -1.60 (-7.32 to 4.12)   | .747 |
| At 4 mo   | 75/           | 76 (98.68)      | 210/213 (98.59) | 0.09 (-2.92 to 3.10)    | .953 |
| Started in this period                                    |               | 3               | 5               |                         |      |
| Withdrawn (0 dose)  |               | 1               | 3               |                         |      |
| BB not recommended in guidelines for HF at baseline *     |               | 1               | 0               |                         |      |
| ACEI  |               |                 |                 |                         |      |
| At baseline   | 63/           | 76 (82.89)      | 176/213 (82.62) | 0.27 (-9.88 to 10.41)   | 1    |
| At 4 mo   | 56/           | 76 (73.68)      | 171/213 (80.28) | -6.60 (-18.74 to 5.55)  | .298 |
| Started in this period                                    |               | 1               | 6               |                         |      |
| Withdrawn (0 dose), without ARB/ARB-neprilysin inhibitor  |               | 1               | 2               |                         |      |
| Changed to other medication: ARB/ARB-neprilysin inhibitor |               | 7               | 9               |                         |      |
| ACEI not recommended in guidelines for HF at baseline *   |               | 0               | 1               |                         |      |
| ACEI not recommended in guidelines for HF at 4 m*         |               | 0               | 1               |                         |      |
| ARB   |               |                 |                 |                         |      |
| At baseline   | 8/7           | 76 (10.52)      | 17/213 (7.98)   | 2.55 (-6.15 to 11.24)   | .66  |
| At 4 m o  | 13/           | 76 (17.10)      | 22/213 (10.32)  | 6.78 (-2.62 to 16.18)   | .120 |
| Started in this period                                    |               | 6               | 6               |                         |      |
| Withdrawn (0 dose), without ACEI/ARB-neprilysin inhibitor |               | 0               | 1               |                         |      |
| Changed to other medication: ARB-neprilysin inhibitor     |               | 1               | 0               |                         |      |
| ARB not recommended in guidelines for HF at baseline*     |               | 1               | 4               |                         |      |
| ARB not recommended in guidelines for HF at 4 mo*         |               | 1               | 3               |                         |      |
| MRA   |               |                 |                 |                         |      |
| At baseline   | 58/           | 76 (76.31)      | 165/213 (77.46) | -1.15 (-13.13 to 10.83) | .964 |
| At 4 mo   | 65/           | 76 (85.52)      | 174/213 (81.69) | 3.84 (6.52 to 14.19)    | .560 |
| Started in this period                                    | 1             | 9               | 20              |                         |      |
| Withdrawn   |               | 2               | 11              |                         |      |

ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB: beta-blockers; 95%CI, 95% confidence interval; Diff, difference; MRA, mineralocorticoid receptor antagonist.

Unless otherwise indicated, the data are expressed as absolute numbers or No. (%).

\*P value of the interaction between treatment and each subgroup.

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### Table 8 of the supplementary data

Drug combination at 4 months (after titration)

| Patients with 3 groups of drugs<br>Drug combination<br>BB + (ACEI/ARB/ARB-neprilysin inhibitor) + MRA | Women<br>n = 76 | Men<br>n = 213  | Dif. (95%Cl)           | Ρ*   |
|---|-----------------|-----------------|------------------------|------|
| HF-nurse group and HF-cardiologist group  | 64/76 (84.21)   | 168/213 (78.87) | 5.34 (-5.42 to 16.09)  | .403 |
| HF-nurse group  | 33/40 (82.5)    | 84/104 (80.77)  | 1.73 (-14.00 to 17.46) | 1    |
| HF-cardiologist group   | 31/36 (86.11)   | 84/109 (77.06)  | 9.05 (-6.58 to 24.68)  | .355 |

ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB, beta-blockers; 95%CI, 95% confidence interval; Diff, difference; MRA, mineralocorticoid receptor antagonist.

Unless otherwise indicated, the data are expressed as No. (%).

 $^{\ast}$  P value of the interaction between treatment and each subgroup.

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#### Table 9 of the supplementary data

Other drugs that could possibly influence titration. Baseline to 4 months

| Patients, n (%) with other drugs that could possibly influence titration/active patients at 4 months | Women n = 76 | Men n = 213 | Diff (95%CI)           | P <sup>a</sup> |
|--|--------------|-------------|------------------------|----------------|
| With any other rate-lowering drug  |              |             |                        |                |
| Baseline   | 22 (28.94)   | 61 (28.64)  | 0.30 (-11.87 to 12.48) | .999           |
| 4 mo   | 16 (21.05)   | 52 (24.41)  | -3.36 (-15.08 to 8.36) | .663           |
| Ivabradine   |              |             |                        |                |
| Baseline   | 14 (18.42)   | 23 (10.80)  | 7.62 (-2.04 to 17.28)  | .088           |
| 4 mo   | 9 (11.84)    | 17 (7.98)   | 3.86 (-5.16 to 12.88)  | .437           |
| Started  | 3            | 9           |                        |                |
| Withdrawn  | 8            | 15          |                        |                |
| Amiodarone   |              |             |                        |                |
| Baseline   | 5 (6.58)     | 26 (12.21)  | -5.63 (-12.73 to 1.47) | .174           |
| 4 mo   | 4 (5.26)     | 23 (10.80)  | -5.53 (-12.95 to 1.88) | .233           |
| Started  | 1            | 5           |                        |                |
| Withdrawn  | 2            | 7           |                        |                |
| Change from amiodarone to dronedarone  |              | 1           |                        |                |
| Digitalis  |              |             |                        |                |
| Baseline   | 3 (3.95)     | 15 (7.04)   | -3.09 (-8.66 to 2.47)  | .338           |
| 4 mo   | 3 (3.95)     | 13 (6.10)   | -2.16 (-7.59 to 3.28)  | .481           |
| Started  | 1            | 4           |                        |                |
| Withdrawn  | 1            | 6           |                        |                |
| Hypo- and hyperthyroidism medication   |              |             |                        |                |
| Baseline   | 7 (9.21)     | 6 (2.82)    | 6.39 (-1.37 to 14.16)  | .047           |
| 4 mo   | 6 (7.89)     | 7 (3.29)    | 4.61 (-2.80 to 12.02)  | .180           |
| Inhaled bronchodilators  |              |             |                        |                |
| Baseline   | 12 (15.79)   | 13 (6.10)   | 9.69 (-0.01 to 19.38)  | .019           |
| 4 mo   | 10 (13.16)   | 13 (6.10)   | 7.05 (2.09 to 16.20)   | .088           |
| With other drugs that can affect blood pressure<br>(nondiuretics)                                    |              |             |                        |                |
| Baseline   | 9 (11.84)    | 24 (11.27)  | 0.57 (-8.41 to 9.56)   | .999           |
| 4 mo   | 10 (13.16)   | 36 (16.90)  | -3.74 (-13.75 to 6.26) | .560           |
| ARB + neprilysin inhibitor   |              |             |                        |                |
| Baseline   | 1 (1.32)     | 2 (0.94)    | 0.38 (-2.87 to 3.62)   | 1              |
| 4 mo   | 4 (5.26)     | 7 (3.28)    | 1.98 (-4.48 to 8.43)   | .672           |
| Started  | 3            | 5           |                        |                |

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| Withdrawn                                | 0             | 2           |                         |        |
|--|---------------|-------------|-------------------------|--------|
| Dihydropyridine calcium-channel blockers |               |             |                         |        |
| Baseline                                 | 3 (3.95)      | 9 (4.23)    | -0.28 (-5.42 to 4.87)   | .917   |
| 4 mo                                     | 3 (3.95)      | 13 (6.10)   | -2.16 (-8.48 to 4.17)   | .679   |
| Started                                  | 0             | 5           |                         |        |
| Withdrawn                                | 0             | 1           |                         |        |
| Nitrates (not sublingual)/hydralazine    |               |             |                         |        |
| Baseline                                 | 6 (7.89)      | 9 (4.22)    | 3.67 (-3.86 to 11.20)   | .349   |
| 4 mo                                     | 4 (5.26)      | 8 (3.76)    | 1.51 (-4.12 to 7.14)    | .572   |
| Started                                  | 0             | 1           |                         |        |
| Withdrawn                                | 2             | 2           |                         |        |
| Alpha-blockers                           |               |             |                         |        |
| Baseline                                 | 1 (1.32)      | 11 (5.16)   | -3.85 (-7.77 to 0.08)   | .149   |
| 4 mo                                     | 0 (0.00)      | 13 (6.10)   | -6.10 (-10.21 to -1.99) | .060   |
| Started                                  | 0             | 3           |                         |        |
| Withdrawn                                | 1             | 1           |                         |        |
| Diuretics (loop/thiazide)                |               |             |                         |        |
| Baseline                                 | 66 (86.84)    | 170 (79.81) | 7.03 (-2.29 to 16.35)   | .174   |
| 4 mo                                     | 62 (81.58)    | 173 (81.22) | 0.36 (-10.17 to 10.89)  | .999   |
| Psychotropic drugs <sup>b</sup>          |               |             |                         |        |
| Baseline                                 | 30/76 (39.47) | 38 (17.84)  | 21.63 (8.61 to 34.66)   | < .001 |
| At 4 mo                                  | 27/76 (35.52) | 37 (17.37)  | 18.16 (5.36 to 17.37)   | .002   |

ARB, angiotensin receptor blocker; 95%Cl, 95% confidence interval; Diff, difference.

<sup>a</sup>P-value of the interaction between treatment and each subgroup.

<sup>b</sup>Psychotropic drugs: antidepressants, anxiolytics, hypnotics, neuroleptics.

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#### Table 10 of the supplementary data

Other variables potentially associated with titration

| Variables potentially associated with titration<br>4 months                      | Women<br>N=76      | Men<br>N=213    | Diff (95%CI)            | Ρ*    |
|--|--------------------|-----------------|-------------------------|-------|
| Systolic blood pressure  |                    |                 |                         |       |
| Baseline, mmHg   | $113.51 \pm 18.08$ | 116.58 ± 18.74  | -3.07 (-7.96 to 1.81)   | .217  |
| 4 mo, mmHg   | 117.71 ± 17.18     | 121.18 ± 19.15  | -3.47 (-8.38 to 1.44)   | .165  |
| SPB ≤100 mmHg  |                    |                 |                         |       |
| Baseline   | 21 (27.63)         | 41 (19.24)      | 8.38 (-3.87 to 20.64)   | .172  |
| 4 mo   | 13 (17.10)         | 33 (15.49)      | 1.61 (-8.15 to 11.37)   | .742  |
| Heart rate, beats/min  |                    |                 |                         |       |
| Baseline   | 73.24 ± 14.6.      | 72.85 ± 13.79   | 0.38 (-3.31 to 4.08)    | .838  |
| 4 mo   | 66.29 ± 11.40      | 66.27 ± 12.41   | 0.01 (-3.19 to 3.21)    | .993  |
| HR < 50 beats/min  |                    |                 |                         |       |
| Baseline   | 2 (2.63)           | 5 (2.35)        | 0.28 (-4.13 to 4.70)    | .999  |
| 4 mo   | 3 (3.95)           | 10 (4.69)       | -0.74 (-5.96 to 4.47)   | .787  |
| Creatinine, mg/dL  |                    |                 |                         |       |
| Baseline   | 0.90 ± 0.38        | 1.13 ± 0.52     | -0.24 (-0.37 to -0.11)  | .0003 |
| 4 mo   | 0.93 ± 0.39        | 1.12 ± 0.51     | -0.18 (-0.31 to -0.06)  | .005  |
| Estimated glomerular filtration rate, mL/min/1.73 m <sup>2</sup>                 |                    |                 |                         |       |
| Baseline   | 73.45 ± 22.15      | 76.23 ± 21.40   | -2.78 (-8.15 to 3.56)   | .439  |
| 4 mo   | 73.55 ± 24.36      | 77.57 ± 21.58   | -4.02 (-10.31 to 2.28)  | .209  |
| eGFR < 60 mL/min/1.73m <sup>2</sup>  |                    |                 |                         |       |
| Baseline   | 16/75 (21.33)      | 46/212 (21.70)  | -0.36 (-11.53 to 10.80) | .999  |
| 4 mo   | 20/75 (26.66)      | 42/212 (19.81)  | 6.86 (-5.40 to 19.11)   | .282  |
| eGFR < 30 mL/min/1.73 m <sup>2</sup>   |                    |                 |                         |       |
| Baseline   | 3/75 (4)           | 4/212 (1.88)    | 2.11 (-3.59 to 7.81)    | .559  |
| 4 mo   | 3/75 (4)           | 6/212 (2.83)    | 1.17 (-4.70 to 7.04)    | .909  |
| eGFR, patients with change of level baseline-4 mo:<br>a) ≥ 60; b) 30-59; c) < 30 |                    |                 |                         |       |
| Improved   | 5/76 (6.58)        | 19/213 (8.92)   | -2.34 (-9.99 to 5.31)   | .694  |
| Worsened   | 8/76 (10.53)       | 14/213 (6.57)   | 3.95 (-4.60 to 12.51)   | .388  |
| Remained similar   | 63/76 (82.89)      | 180/213 (84.51) | -1.61 (-12.27 to 9.04)  | .883  |
| Sodium, mEq/L  |                    |                 |                         |       |
| Baseline   | 139.84 ± 2.87      | 139.34 ± 3.33   | 0.50 (-0.30 to 1.30)    | .216  |
| 4 mo   | 140.87 ± 3.15      | 140.14 ± 3.26   | 0.73 (-0.12 to 1.57)    | .092  |
| Potassium, mEq/L   |                    |                 |                         |       |
| Baseline   | 4.41 ± 0.58        | 4.49 ± 0.51     | -0.08 (-23.80 to 0.06)  | .245  |
| 4 mo   | 4.65 ± 0.48        | 4.67 ± 0.48     | -0.01 (-0.14 to 0.11)   | .844  |
| K >5.5 mEq/L   |                    |                 | ,                       |       |
| Baseline   | 1 (1.32)           | 4 (1.89)        | -0.56 (-3.74 to 2.62)   | .750  |
| 4 mo   | 3 (3.95)           | 10 (4.73)       | -0.78 (-6.02 to 4.54)   | .792  |
| K > 6 mEq/L  | /                  | /               |                         | -     |

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|   |                  |                 | 1                           |       |
|---|------------------|-----------------|-----------------------------|-------|
| Baseline  | 1 (1.32)         | 1 (0.47)        | 0.86 (-1.90 to 3.62)        | .443  |
| 4 mo  | 1 (1.32)         | 1 (0.47)        | 0.86 (-1.90 to 3.62)        | .443  |
| Hemoglobin, g/dL  | 13.65 ± 1.92     | 14.89 ± 6.97    | -1.24 (-2.84 to 0.36)       | .128  |
| Baseline  | $13.13 \pm 1.40$ | 13.96 ± 1.76    | -0.83 (-1.28 to -0.38)      | .0004 |
| 4 mo  |                  |                 |                             |       |
| Hemoglobin < 12 (women), < 13 (men), g/dL   |                  |                 |                             |       |
| Baseline  | 19 (25.00)       | 46 (21.60)      | 3.40 (-7.79 to 14.60)       | .542  |
| 4 mo  | 15 (20.83)       | 49 (23.67)      | -2.84 (-13.86 to 8.19)      | .622  |
| NYHA  |                  |                 |                             |       |
| Baseline  |                  |                 |                             |       |
| NYHA II   | 58 (76.32)       | 182 (85.45)     | -9.13 (-20.69 to 2.43)      | .100  |
| NYHA III  | 18 (23.68)       | 31 (14.55)      | 9.13 (-1.54 to 19.80)       | .068  |
| 4 mo  |                  |                 |                             |       |
| ΝΥΗΑΙ   | 14 (18.67)       | 65 (32.02)      | -13,35 (-24.26 to<br>-2.45) | .029  |
| NYHA II   | 59 (78.67)       | 130 (64.04)     | 14.63 (3.25 to 26.01)       | .020  |
| NYHA III  | 2 (2.67)         | 8 (3.94)        | -1.27 (-5.80 to 3.25)       | .613  |
| Atrial fibrillation/atrial flutter  |                  |                 |                             |       |
| Baseline  | 14 (18.42)       | 64 (30.05)      | -11.63 (-22.30 to<br>-0.96) | .05   |
| 4 mo  | 9 (11.84)        | 37 (17.37)      | -5.53 (-14.40 to 3.34)      | .258  |
| BMI ≤ 19  | 7 (9.21)         | 4 (1.87)        | 7.33 (-0.31 to 14.98)       | .011  |
| Flexible diuretic regime/patients with a prescription                                   | 39/62 (62.90)    | 113/173 (65.32) | -2.41 (-17.47 to 12.64)     | .852  |
| Flexible diuretic regime/patients with a prescription,<br>HF-nurse group: 82/118        | 23/33 (69.70)    | 59/84 (70.24)   | -0.54 (-19.56 to 18.48)     | .999  |
| Flexible diuretic regime/patients with a prescription,<br>HF-cardiologist group: 66/119 | 15/29 (51.72)    | 51/89 (57.30)   | -5.58 (-28.75 to 17.60)     | .756  |
| European Heart Failure Self-care Behaviour Scale,<br>(min-max) (12-60 worse)            | 18.30 ± 6.35     | 20.62 ± 8.27    | -2.32 (-4.38 to -0.26)      | .027  |
| Question 10. Irregular medication intake score $\geq$ 3                                 | 2 (2.63)         | 10 (4.76)       | -2.13 (-6.74 to 2.48)       | .427  |
|   | 1                | 1               |                             |       |

BMI, body mass index; 95%CI, 95% confidence interval; Diff, difference; eGFR, estimated glomerular filtration rate; HR, heart rate; NYHA, New York Heart Association; K, Potassium; SBP, systolic blood pressure.

The data are expressed as No. (%) or mean ± standard deviation.

\*P value of the interaction between treatment and each subgroup.

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