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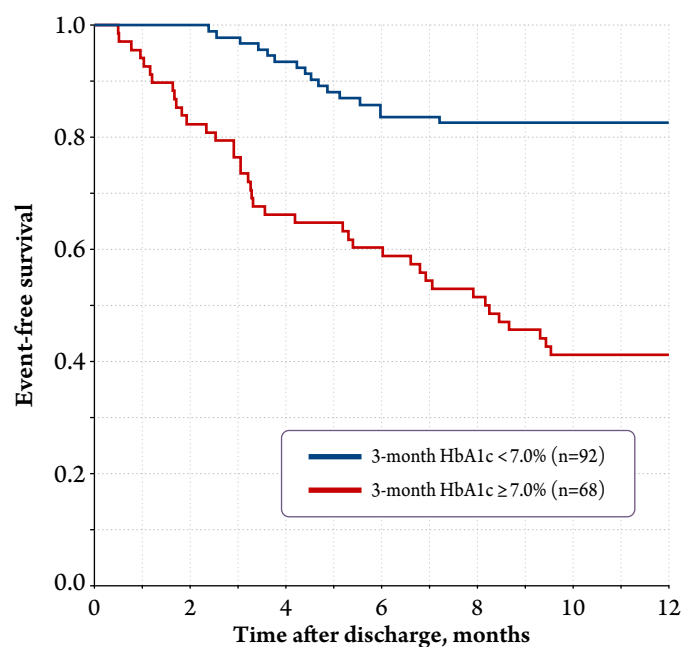
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EARLY POST-DISCHARGE GLYCEMIC CONTROL AND CARDIOVASCULAR EVENT READMISSION IN PATIENTS WITH HEART FAILURE AND TYPE 2 DIABETES: A SINGLE-CENTER RETROSPECTIVE COHORT STUDY

<i>Background</i>	Heart failure (HF) patients with type 2 diabetes mellitus (T2DM) are at high risk of hospital readmission due to cardiovascular events. Glycemic control may play a key role in reducing this risk, but the optimal glycemic control threshold for preventing readmissions remains unclear.
<i>Material and methods</i>	This single-center, retrospective cohort study included 160 adult patients with HF and type 2 diabetes mellitus (T2DM). Patients were classified into two groups based on HbA1c measured 3 months after discharge: poor glycemic control (HbA1c $\geq 7.0\%$) and good glycemic control (HbA1c $< 7.0\%$). Data were collected from electronic medical records, and cardiovascular event readmissions were tracked over a one-year follow-up period. Kaplan–Meier event-free survival (EFS) analysis and Cox regression models were used to examine the relationship between the three-month HbA1c and cardiovascular event readmission. A Fine–Gray competing-risk model was additionally applied to provide a more robust estimate of the cumulative incidence of cardiovascular readmission.
<i>Results</i>	Among the 160 patients, 56 (35%) were readmitted due to cardiovascular events, including HF exacerbation (39.3%), myocardial infarction (25.0%), arrhythmias (14.3%), and coronary artery disease (8.9%). Their median EFS time was 121 days. The readmission rate was significantly higher in patients with poor glycemic control (HbA1c $\geq 7.0\%$), with 58.8% of the patients being readmitted compared to 17.4% in the group with good glycemic control (HbA1c $< 7.0\%$, $p < 0.001$). Kaplan–Meier EFS analysis confirmed a significantly shorter EFS in patients with poor glycemic control. Cox regression analysis identified the three-month HbA1c value as an independent predictor of cardiovascular event readmission (HR=3.41, 95% CI 2.15–5.29, $p < 0.001$), which was consistent with the Fine–Gray competing-risk analysis (sub-distribution HR=3.12, 95% CI 1.95–4.98, $p < 0.001$).
<i>Conclusion</i>	Early glycemic control, particularly the three-month HbA1c value, is a strong predictor of cardiovascular event readmission in HF patients with DM. Optimizing glycemic control within the first three months post-discharge may significantly reduce readmission risk and improve clinical outcomes.
<i>Keywords</i>	Heart failure; diabetes management; cardiovascular event readmission; glycemic control
<i>For citations</i>	Hong Xu, Yuhua Ma, Xiaofei Han, Xiaohui Li, Xiong Tu, Liqin Zhao. Early Post-discharge Glycemic Control and Cardiovascular Event Readmission in Patients With Heart Failure and Type 2 Diabetes: A Single-center Retrospective Cohort Study <i>Kardiologiia</i> . 2026;66(2):52–60. [Russian: Хонг Сюй, Юхуа Ма, Сяофэй Хань, Сяохуэй Ли, Сюн Ту, Лицин Чжао. Контроль уровня глюкозы в крови после выписки и повторная госпитализация по поводу сердечно-сосудистых событий у пациентов с сердечной недостаточностью и сахарным диабетом 2 типа: ретроспективное когортное одноцентровое исследование. <i>Кардиология</i> . 2026;66(2):52–60].
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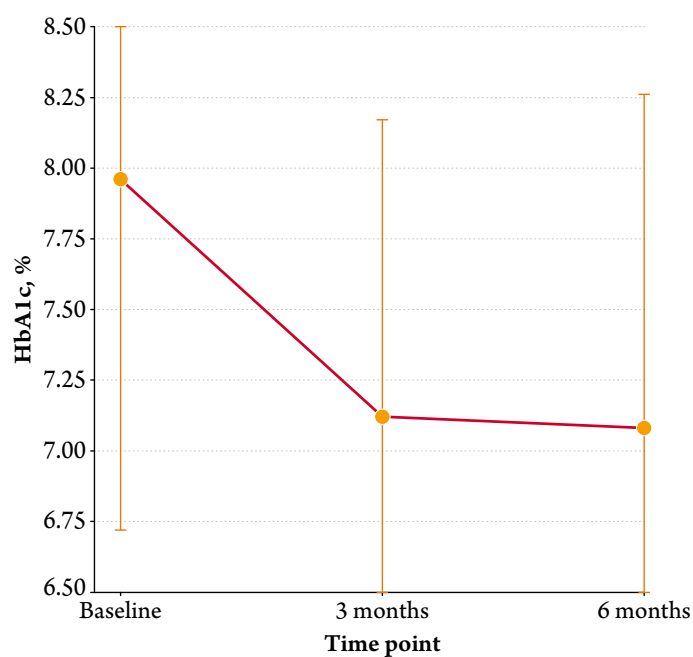
SUPPLEMENTARY MATERIALS

Supplementary Figure 1. Kaplan–Meier event-free survival curves for cardiovascular event readmission within 12 months after discharge according to 3-month HbA1c level



Patients with 3-month HbA1c $\geq 7.0\%$ (n=68) had a markedly lower event-free survival than those with HbA1c $< 7.0\%$ (n=92), consistent with the higher 12-month readmission proportion (58.8% vs 17.4%).

Supplementary Figure 2. Longitudinal changes in HbA1c from baseline to 3 and 6 months after discharge in the study cohort



Points indicate mean HbA1c values at each time point, and error bars represent standard errors (SE).

Supplementary Table 1 (Beginning). STROBE checklist for cohort studies

Item	Recommendation (cohort studies–paraphrased)	Location in manuscript
1	Indicate the study design in the title or abstract.	Title (“... A Single-center Retrospective Cohort Study”); Abstract–Material and methods (“This single-center, retrospective cohort study included 160 adult patients...”).
2	Explain the scientific background and rationale for the investigation.	Introduction, paragraphs 1–3 (HF + T2DM burden, prognostic issues, controversy about glycemic targets and early post-discharge risk).
3	State specific objectives or hypotheses.	Introduction, last paragraph (“To address these gaps, we conducted a single-center retrospective cohort study... We examined the association between 3-month post-discharge HbA1c and subsequent cardiovascular event readmission within 12 months, using landmark and competing-risk analyses...”).
4	Present key elements of study design early in the paper.	Material and methods–Study design (“single-center, retrospective cohort study... association between glycemic control and cardiovascular event readmission in HF patients with DM”).
5	Describe the setting, locations, and relevant dates (including periods of recruitment, exposure, follow-up, and data collection).	Material and methods–Study population (“admitted... between January 2020 and September 2024”); Study design and Data collection (single hospital, follow-up from discharge to 12-month observation window).
6a	Give eligibility criteria, and the sources and methods of selection of participants; describe follow-up.	Material and methods–Study population; Inclusion and exclusion criteria (adult HF + T2DM, inclusion/exclusion list); Data collection (“All patients were followed from the date of hospital discharge until...”).
6b	For matched studies, give matching criteria and numbers of exposed/unexposed.	Not applicable (no matching design).
7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers.	Data collection (definition of 3-month HbA1c, grouping cut-offs, comorbidities); Outcome measures (primary outcome: cardiovascular event readmission; secondary outcomes: longitudinal HbA1c, association with readmission).
8	For each variable of interest, give sources of data and details of assessment methods.	Data collection (data retrieved from electronic medical records; variables including demographics, comorbidities, HbA1c at baseline/3/6 months, cardiovascular readmission data).
9	Describe any efforts to address potential sources of bias.	Statistical analysis (three-month landmark analysis “to minimize immortal time bias,” Fine–Gray model accounting for death as competing event); Discussion–methodological paragraph (mitigating survival time bias and competing risk).
10	Explain how the study size was arrived at.	Results–Patient baseline characteristics (“A total of 219 patients were screened, and 160... were included... Figure 1”); Figure 1 (screening and inclusion flow).
11	Explain how quantitative variables were handled in the analyses (e.g. groupings).	Data collection (HbA1c as continuous measure and dichotomized at 7.0% for 3-month groups); Statistical analysis (repeated-measures ANOVA/Friedman for HbA1c, Cox models with HbA1c $\geq 7.0\%$ vs $< 7.0\%$ as primary exposure).
12a	Describe all statistical methods, including those used to control for confounding.	Statistical analysis (descriptive statistics; repeated-measures ANOVA/Friedman; Kaplan–Meier EFS; Cox proportional hazards; landmark analysis; Fine–Gray competing-risk model; adjustment for age, sex, LVEF, NT-proBNP, baseline HbA1c).
12b	Describe methods used to examine subgroups and interactions.	Partly addressed: stratification by 3-month HbA1c category (good vs poor control) in Statistical analysis and Results–Predictive value of three-month HbA1c; no formal interaction tests reported.
12c	Explain how missing data were addressed.	Inclusion and exclusion criteria (patients with “missing data on key variables... baseline or 3-month HbA1c... cardiovascular outcome data” were excluded), thus restricting analysis to complete cases.
12d	If applicable, explain how loss to follow-up and censoring were handled.	Data collection (censoring rules for patients without readmission or who died); Statistical analysis (censoring in Kaplan–Meier and Cox models; death treated as competing event in Fine–Gray models).
12e	Describe any sensitivity analyses.	Statistical analysis & Results–Predictive value... : landmark analysis and Fine–Gray competing-risk analysis used as complementary/sensitivity approaches to main Cox model.
13a	Report the numbers of individuals at each stage of the study (e.g. eligible, included, completing follow-up).	Results–Patient baseline characteristics (219 screened, 160 included); Figure 1 (study flow).
13b	Give reasons for non-participation at each stage.	Figure 1 (reasons for exclusion: missing data, non-cardiovascular index admission, comorbidities, etc.).
13c	Consider use of a flow diagram.	Addressed in Figure 1. Design of the study (flow diagram).
14a	Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders.	Results–Patient baseline characteristics (Table 1); DM-related characteristics and management (Table 2); Table 3 (baseline indicators by baseline HbA1c).

Supplementary Table 1 (Ending). STROBE checklist for cohort studies

Item	Recommendation (cohort studies–paraphrased)	Location in manuscript
14b	Indicate number of participants with missing data for each variable of interest.	Partly addressed: Inclusion and exclusion criteria and Figure 1 describe exclusion of patients with missing key variables; per-variable missingness is not tabulated.
14c	Summarize follow-up time (e.g. average and total).	Abstract–Results (median EFS 121 days); Results–Cardiovascular event readmission profile (timing of events, median days to event per cause in Table 4).
15	Report numbers of outcome events or summary measures over time.	Results–Cardiovascular event readmission profile (56/160 readmissions; breakdown by cause in Table 4); Associations between HbA1c and cardiovascular event readmission/Predictive value... (event proportions 58.8% vs 17.4% by 3-month HbA1c group).
16a	Give unadjusted and, if applicable, adjusted estimates and their precision (e.g. 95% CI). Make clear which confounders were adjusted for.	Results–Predictive value of the HbA1c value at three-months... (Table 5: adjusted HRs with 95% CIs for Cox, landmark Cox, and Fine–Gray models; covariates listed in Methods).
16b	Report category boundaries when continuous variables were categorized.	Data collection (3-month HbA1c categorized as <7.0% vs ≥7.0%); Results–tables and figure legends (same cut-off repeated).
16c	If relevant, translate relative risk estimates into absolute risk for a meaningful time period.	Partially addressed by reporting event proportions (58.8% vs 17.4%) over 12 months in Results–Predictive value...; no separate absolute risk calculation beyond these proportions.
17	Report other analyses done (e.g. subgroup and sensitivity analyses).	Results–Predictive value... (landmark analysis, Fine–Gray competing-risk analysis); Competing-risk analysis of cardiovascular event readmission (CIF curves, Supplementary Figure 1); Discussion (interpretation of these additional analyses).
18	Summarize key results with reference to study objectives.	Discussion, first two paragraphs (key findings that 3-month HbA1c is an independent prognostic marker, early glycemic control associated with higher/lower readmission risk); Summary section.
19	Discuss limitations, taking into account potential sources of bias or imprecision; discuss direction and magnitude of potential bias.	Discussion–limitations paragraph (retrospective design, single-center, sample size, lack of formal prediction model, reliance on HbA1c and absence of CGM, need for external validation).
20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, and results from similar studies.	Discussion, middle paragraphs (comparison to prior literature, critical window after discharge, implications for glycemic management); Summary (balanced interpretation with acknowledgement of limitations).
21	Discuss the generalisability (external validity) of the study results.	Discussion–limitations (single-center cohort may limit generalizability); Summary suggests need for confirmation in larger, external cohorts.
22	Give the source of funding and the role of funders.	A specific funding source is not reported in the current manuscript; only a conflict-of-interest statement is provided (“No conflict of interest is reported.”).