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ORIGINAL RESEARCH

Systematic screening for multimorbidities in patients with inflammatory rheumatic diseases enhanced preventive medication use and reduced hospitalisations: an exposed-non-exposed study

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ABSTRACT

Rational Studies are needed to determine if multimorbidity screening and management reduce the rate of multimorbidity accumulation in patients with chronic inflammatory rheumatic diseases (IRD).

Objectives This study evaluates the impact of systematic screening programme on patient care and hospitalisation rates.

Methods Patients with IRD who participated in the screening programme (exposed patients) were identified within the French national health database and matched with controls. Two sets of analysis were performed: one with multivariate analysis and a second using a propensity score matching to ensure comparability between exposed patients and controls. The primary endpoint (PE) was a composite score assessing the dispensation of multimorbidity-preventing drugs, including vaccines, lipid-lowering agents, antiosteoporotic medications and antiplatelet drugs, during the year following the index date.

Results The first analysis included 286 exposed patients and 858 controls, demonstrating a higher rate of meeting the PE in exposed patients (adjusted OR=1.6 (1.2–2.2), p<0.01). Propensity score matching resulted in 281 exposed patients and 281 controls. Exposed patients exhibited a significantly higher rate of meeting the PE compared with controls (54.8% vs 44.5%; OR=1.5; p=0.015), with increased utilisation of vaccines, cholesterol-lowering drugs and antiosteoporotic medications. Furthermore, emergency admission and hospitalisations for fracture, cardiovascular events or infection were significantly less frequent in the exposed group (7.1% vs 15.3%; OR=0.42, p<0.01), with a reduction in severe infections (0.7% vs 3.9%; p=0.03).

Conclusion Systematic multimorbidity screening in patients with IRD boosted preventive medication use and reduced hospital admissions, justifying time and resource allocation for screening.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Patients with chronic inflammatory rheumatic disease (IRD) are at increased risk of multimorbidity.

⇒ Implementing European Alliance of Associations for Rheumatology's multimorbidity prevention recommendations in routine care is challenging, and the impact of such a screening program on the accumulation of multimorbidities in patients with IRD is yet to be demonstrated.

WHAT THIS STUDY ADDS

⇒ Our screening programme led to a 50% rise in dispensation of multimorbidity-preventing drugs and a 58% drop in urgent hospitalisations and hospitalisations for fracture, cardiovascular events or infection in the year following the screening, compared with patients who received standard care.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Systematic multimorbidity screening in patients with IRD increased preventive medication use and reduced hospital admissions, justifying time and resource allocation for such screening initiatives.

INTRODUCTION

Patients with chronic inflammatory rheumatic diseases (IRD), such as rheumatoid arthritis (RA), psoriatic arthritis (PsA) or spondyloarthritis (SA), face an elevated risk of multimorbidity, encompassing cardiovascular (CV) and pulmonary diseases, osteoporosis, infections and certain cancers.[1–6] This heightened risk stems from shared factors including lifestyle habits such as smoking, persistent chronic inflammation and iatrogenic effects primarily attributable to corticoids and non-steroidal

anti-inflammatory drugs. Despite the recognised vulnerability to multimorbidity in this population, adequate prevention, screening and management have been lacking. In response, the European Alliance of Associations for Rheumatology (EULAR) has issued recommendations aimed at enhancing multimorbidity prevention in IRD.[7–9] Yet, implementing these guidelines in routine clinical settings poses significant challenges. Additional research is imperative to ascertain whether multimorbidity screening and management effectively mitigate the accumulation of multimorbidities in patients with IRD. This critical inquiry is essential for justifying resource allocation towards screening, notwithstanding the potential time and resource constraints.

Since 2014, our institution has implemented a comprehensive programme aimed at screening for and preventing multimorbidity in patients with IRD within our routine clinical practice at the Montpellier University Hospital. This programme, as described elsewhere,[10] adopts a comprehensive approach that includes various aspects such as clinical assessments (CV risk estimation, screening for obstructive sleep apnoea syndrome, vaccination history, cancer screening status, dietary assessments, etc), laboratory investigations (glycaemia, lipid profiles, vitamin D levels, calcium levels, etc), imaging studies (transthoracic echocardiography and supra-aortic trunk echo-Doppler), osteoporosis risk evaluation and management (including bone densitometry±Fracture Risk Assessment Tool calculation) and screening for pulmonary pathologies (questionnaires, clinical examinations and spirometry). This assessment is designated for patients who have not had previous ischaemic CV events (primary prevention). Patients in secondary prevention are subject to a specific close cardiac follow-up.

However, the real-world relevance and effectiveness of such comprehensive programmes in routine clinical practice warrant empirical validation. Thus, this study sought to evaluate the impact of our screening programme on patient management and hospitalisation rates in the subsequent year.

METHODS

Study design

We performed an observational comparative study. Given the widespread adoption of our systematic screening approach within our department, we established a control group consisting of patients sourced from the French national health database. Due to the limited availability of organised systematic multimorbidity screening programmes in France, we presumed that patients from other healthcare facilities had not undergone comparable screening. As a result, we categorised them as controls.

Patient identification

The screening and prevention check-up procedures have been elaborated previously.[10] Patients from our department who underwent systematic screening in 2016 and 2017 were identified in the French national health database based on specific procedures conducted during a single-day visit to our daily clinic (including transthoracic echocardiography, supra-aortic trunk echo-Doppler and bone densitometry).

The full control population (first set of analysis) was selected from the same geographic area as the intervention group (Southern France) and was treated at least once in a hospital during the matching year. Inclusion and exclusion criteria, along with corresponding codes, are detailed in online supplemental table 1. Control and exposed patients were matched with a 3:1 ratio using the following variables: index year (ie, year of first admission to the Montpellier university hospital department for exposed, and year of hospital admission for IRD in the control group), age group (<50, 50–60, 60–70 and >70 years), gender, IRD (PsA, RA and SA) and disease duration (< 5, 5–10 and >10 years).

To improve comparability, a different control population (second set of analysis) was selected from the 858 controls using an additional matching step with a 1:1 ratio, based on a propensity score. The propensity score was constructed based on several baseline characteristics, including sex, age category, IRD diagnosis, disease duration, deprivation index, comorbidities (such as diabetes, heart failure, chronic respiratory insufficiency), medications for multimorbidity dispensed in the year prior to the index date, cardiologist or pulmonologist visit in the year preceding index date, use of disease-modifying antirheumatic drug (DMARDs) and emergency hospitalisations or unscheduled hospitalisations (for fracture, infection or CV events) in the preceding year.

Objectives and endpoints

The primary endpoint (PE) was a composite score evaluating the dispensation of multimorbidity-preventing drugs (including vaccines, lipid-lowering agents, antiosteoporosis treatments and antiplatelet agents) during the year following the index date, aimed at assessing adherence to recommendations provided during systematic screening. Secondary endpoints included the dispensation of each multimorbidity-preventing drug included in the PE and consultations with cardiologists/pulmonologists. Additionally, to gauge the benefits of systematic screening and adherence to recommendations, we assessed rates of emergency hospitalisations and hospitalisations for fracture, CV events or infections during the year following screening.

Statistical analysis

Two distinct statistical analyses were conducted on separate subset of the cohorts. The first set of analysis involved 286 exposed patients and 858 controls, while the second set of analysis involved 281 exposed patients being and 281 controls.

For the comparison between exposed patients and controls, qualitative variables were assessed using the

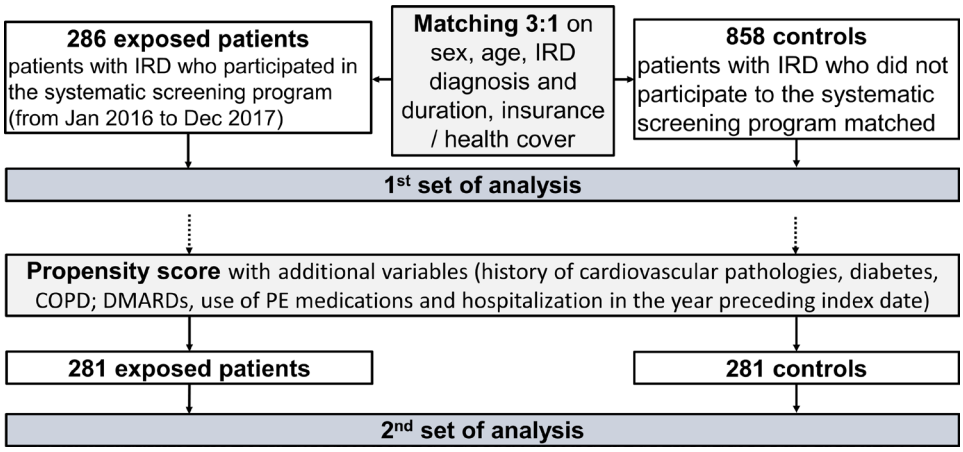

Figure 1 Patient's flowchart. COPD: chronic obstructive pulmonary disease; DMARDs, disease-modifying antirheumatic drugs; IRD, inflammatory rheumatic disease; PE, primary endpoint.

Chi2 test or Fisher's exact test in cases of limited events, while the Wilcoxon-Mann-Whitney test was employed for the quantitative variable 'age'. In the first analysis, crude ORs and corresponding 95% CIs were calculated using univariate logistic models. To account for potential confounding factors that exhibited baseline disparities between groups regarding primary and secondary endpoints, multivariate logistic models were employed for adjustment.

In the second analysis, conditional multivariate logistic models were then performed to estimate ORs and their corresponding 95% CIs for both primary and secondary endpoints within the matched sets.

Statistical significance was determined at a p value below 0.05. All statistical analyses were conducted using SAS V.9.4 software, with the SAS procedure employed for the propensity score matching process.

RESULTS

Participants

The flow chart of patients included in the two sets of analyses is presented in figure 1.

First set of analysis

In this analysis, a total of 286 exposed patients and 858 controls were included. Table 1 presents the baseline characteristics of patients in the first set of analysis. The mean age was 56.7 years, with 60.5% being women. The majority of patients suffered from RA (73.4%), with 19.9% diagnosed with spondyloarthritis. Among them, 76.9% were receiving corticosteroids, 65.4% were treated with conventional synthetic DMARDs (csDMARDs) and 65.7% with biologic DMARDs (bDMARDs). Among the 858 control patients, 303 (35.3%) were treated in a university public hospital (CHU), 372 in a non-university public hospital (43.4%) and 183 (21.3%) in a private hospital. Exposed patients exhibited significantly fewer instances of diabetes and, numerically, less occurrences of heart failure at baseline. They also more frequently met the PE in the year preceding the index date, demonstrating increased use of vaccines and antiosteoporosis drugs but less utilisation of antiplatelet drugs.

After adjustments for known comorbidities (diabetes, heart failure, lung disease), emergency hospitalisations, unscheduled hospitalisations for fracture or CV events or infections in the preceding year, cardiologist or pulmonologist visit in the year preceding index date, as well as the use of DMARDs and multimorbidity preventive drugs, exposed patients were significantly more likely to meet the PE (table 2; adjusted OR=1.6 (1.2–2.2), p<0.01). During the follow-up year, a higher proportion of exposed patients received vaccines, lipid-lowering drugs and antiosteoporotic medications. However, there was no significant difference between exposed patients and controls in terms of antiplatelet drug usage. Additionally, a greater number of exposed patients consulted cardiologists or pneumologists at least once in the year following systematic screening compared with controls (table 2; 24% vs 19%, adjusted OR=1.9 (1.3–2.8), p<0.01).

Notably, this was associated with a 60% reduction in emergency admissions (table 2; adjusted OR=0.4 (0.2–0.7)). Furthermore, there were significantly fewer hospitalisations due to infections observed among exposed patients compared with controls (0.7% vs 4.7%, p<0.01). Although there were numerically fewer fractures (1 vs 2.4%, p=0.16) and CV events (1.4 vs 2.4%, p=0.30) among exposed patients, these differences did not reach statistical significance.

Second set of analysis

Given the substantial disparities observed between exposed patients and controls in our initial analysis, despite adjustments for baseline differences, the possibility of confounding factors influencing the results cannot be dismissed. To address this concern, we conducted a second analysis employing propensity score matching, aiming to ensure the comparability of the two groups at baseline. The matching process effectively resulted in highly comparable populations, as depicted in online supplemental figure 1.

Table 1 Patient characteristics for analysis 1

Baseline	Exposed patients	Controls	P value
Number	286	858	
Age	56.7±12.2	57.1±14.0	0.88*
Women	173 (60.5%)	519 (60.5%)	1.00
IRD: rheumatoid arthritis	210 (73.4%)	630 (73.4%)	1.00
IRD: psoriatic arthritis	19 (6.6%)	57 (6.6%)	–
IRD: spondyloarthritis	57 (19.9%)	171 (19.9%)	–
Disease duration: <5 years	98 (34.3%)	294 (34.3%)	1.00
Disease duration: 5–10 years	75 (25.2%)	216 (25.2%)	–
Disease duration: >10 years	116 (40.6%)	348 (40.6%)	–
Type 1 or 2 diabetes	15 (5.2%)	77 (9.0%)	0.045
Heart failure	5 (1.7%)	31 (3.6%)	0.12
Hypertension	8 (2.8%)	28 (3.3%)	0.70
Stroke	1 (0.3%)	9 (1.0%)	0.47†
Coronary heart disease	1 (0.3%)	9 (1.0%)	0.47†
Chronic respiratory insufficiency	6 (2.1%)	27 (3.1%)	0.36
In the year preceding index date			
Corticosteroid use	220 (76.9%)	642 (74.8%)	0.48
csDMARDs use	187 (65.4%)	460 (53.6%)	<0.01
bDMARDs	188 (65.7%)	273 (31.8%)	<0.01
Osteoporotic fractures	4 (1.4%)	18 (2.1%)	0.46
Primary endpoint (use of preventive medications)	135 (47.2%)	324 (37.8%)	<0.01
At least one vaccine	102 (35.7%)	217 (25.3%)	<0.01
Lipid-lowering drug	24 (8.4%)	95 (11.1%)	0.20
Antiosteoporosis drug	42 (14.7%)	59 (6.9%)	<0.01
Cardiologist/pulmonologist consultation	23 (8.0%)	141 (16.4%)	<0.01
Emergency hospitalisation or unscheduled hospitalisation for fracture or cardiovascular event or infection	19 (6.6%)	124 (14.5%)	<0.01

*P value obtained by Wilcoxon-Mann-Whitney test for the quantitative variable, χ^2 test for most qualitative variables.
†P value obtained by Fisher's exact test for variables with small numbers of occurrences.
bDMARDs, biologic disease-modifying antirheumatic drugs; csDMARDs, conventional synthetic disease-modifying antirheumatic drugs; IRD, inflammatory rheumatic disease.

A total of 281 exposed patients were successfully matched to 281 controls and included in this secondary analysis. Table 3 outlines the baseline characteristics of patients involved in this second set of analysis. The mean age was 56 years, with 58% being women. The majority of patients suffered from RA (73.1%), while 20.6% were diagnosed with spondyloarthritis. Among them, 78.1% were receiving corticosteroids, 64.4% were treated with csDMARDs and 64.8% with bDMARDs. Patients in the exposed group and controls demonstrated comparable baseline characteristics, except for the use of antiosteoporosis drugs in the previous year, which was more prevalent among exposed patients (table 3; 14.6% vs 7.1%, p=0.004).

At 1 year, the PE was more frequently achieved in exposed patients (table 4; OR=1.6 (1.1–2.2), p=0.02), with significantly higher utilisation of vaccines (OR=1.6 (1.1–2.1)), lipid-lowering drugs (OR=2.0 (1.2–3.3)) and antiosteoporotic drugs (OR=2.3 (1.3–4.1)). Among vaccines, exposed patients received more pneumococcal (29.6% vs 14.8%; p<0.001) and tetanus (16.6% vs 3.9%; p<0.001) vaccines but equivalent influenza vaccines (15.1% vs 16.6%; p=0.65).

A larger proportion of exposed patients consulted a cardiologist and/or a pneumologist in the year following systematic screening compared with controls (OR=2.2 (1.5–3.3)), underscoring again the effective application of recommendations provided during systematic

Table 2 Comparison of primary and secondary endpoints at 1 year following index date in the total population

	Exposed patients, n (%)	Controls, n (%)	Crude OR (95% CI) P value	Adjusted OR (95% CI) P value
Primary endpoint (use of preventive medications)	158 (55.2)	385 (44.9)	1.5 (1.2 to 2.0) p<0.01	1.6 (1.2 to 2.2) p<0.01
At least one vaccine	122 (42.7)	268 (31.2)	1.6 (1.2 to 2.2) p<0.01	
Lipid-lowering drug	56 (19.6)	101 (11.8)	1.8 (1.3 to 2.6) p<0.01	
Antiosteoporosis drug	40 (14.0)	70 (8.2)	1.8 (1.2 to 2.8) p<0.01	
Antiplatelet drug	18 (6.3)	58 (6.8)	0.9 (0.5 to 1.6) p=0.78	
Cardiologist/pulmonologist consultation	69 (24.1)	163 (19.0)	1.4 (1.0 to 1.9) p=0.062	1.9 (1.3 to 2.8) p<0.01
Emergency admission or unscheduled hospitalisation for fracture or cardiovascular event or infection	21 (7.3)	161 (18.8)	0.3 (0.2 to 0.6) p<0.01	0.4 (0.2 to 0.7) p<0.01
Hospitalisations for fracture	3 (1.0)	21 (2.4)	0.4 (0.1 to 1.4) p=0.16	
Hospitalisations for cardiovascular event	4 (1.4)	21 (2.4)	0.6 (0.2 to 1.7) p=0.30	
Hospitalisation for infection	2 (0.7)	40 (4.7)	0.1 (0.0 to 0.6) p<0.01	
Use of antibiotics	183 (64.0)	541 (63.1)	1 (0.8 to 1.4) p=0.78	

Adjusted OR: logistic model adjusted on known comorbidities (diabetes, heart failure, lung disease), unscheduled hospitalisations (for fracture, cardiovascular event or infection) or hospitalisation in emergency (all causes) in the year preceding index date, at least one cardiologist or pulmonologist in the year preceding index date and use of conventional synthetic disease-modifying antirheumatic drugs (DMARDs), biologic DMARDs and drugs included in the primary endpoint in the year preceding index date.

screening. This implementation was associated with a 58% reduction in emergency hospitalisations (table 4; OR=0.4 (0.2–0.8)). Moreover, there were significantly fewer hospitalisations due to infections (0.7% vs 3.9%, OR=0.18, p=0.03). Respiratory infections exhibited a significant decrease (0 vs 2.1%; p=0.03); however, the small number of events precludes drawing definitive conclusions. The use of antibiotics remained high and comparable in both groups (64.4% vs 63.3%, p=0.80). There were numerically fewer fractures (1.1% vs 2.5%, p=0.22) and CV events were infrequent and similar in both groups (1.1% vs 1.8%, p=0.48).

DISCUSSION

Although EULAR highlights the need for proactive screening and prevention measures,[7–9] the effectiveness of systematic screening programmes for multimorbidity in patients with IRD remains inadequately evaluated. Patients who underwent a systematic screening of multimorbidities had a higher use of preventing drugs and consulted more often a cardiologist and/or a lung specialist in the year following the screening confirming the positive impact of such a programme on the application of the given recommendations. We also observed a 60% decrease of the emergency hospitalisations or unscheduled hospitalisations for fracture or CV event or infection whatever the set of analysis.

The substantial reduction in hospitalisations for infection (OR=0.18) may, to some extent, be credited to the rise in pneumococcal vaccination rates. Indeed, we noted a significant decline in respiratory infections within 1 year, although this finding warrants careful interpretation given the limited number of events. The risk of pulmonary infection is particularly high for patients with IRD. In a study of US veterans with RA, the highest rate of hospitalisation for infection was due to pneumonia (37%).[11] A retrospective study examining the prolonged impact of pneumococcal vaccine in patients with RA treated by methotrexate revealed a relative risk of 9.7 for pneumonia development in individuals who were not vaccinated.[12] These findings underscore the significance of pneumococcal vaccination in IRD management.[9]

Implementing systematic screening and management of comorbidities in primary prevention in routine clinical settings poses challenges and consumes time. Our programme involves multiple professional interventions (nurses, physicians, dietitians) during a single-day visit to our clinic, incurring costs and time investment.

Table 3 Patient characteristics for analysis 2 after the use of propensity score

Baseline	Exposed patients	Controls	P value
Number	281	281	
Age	56.5±12.1	55.3±13.2	0.19*
Women	170 (60.5)	156 (55.5)	0.23
IRD: rheumatoid arthritis	207 (73.7%)	204 (72.6%)	0.96
IRD: psoriatic arthritis	17 (6.0%)	13 (6.4%)	–
IRD: spondyloarthritis	57 (20.3%)	59 (21.0%)	–
Disease duration : <5 years	97 (34.5%)	99 (35.2%)	0.98
Disease duration : 5–10 years	70 (24.9%)	68 (24.2%)	–
Disease duration : >10 years	114 (40.6%)	114 (40.6%)	–
Type 1 or 2 diabetes	15 (5.3%)	10 (3.6%)	0.31
Heart failure	5 (1.8%)	3 (1.1%)	0.72†
Hypertension	8 (2.8%)	4 (1.4%)	0.24
Stroke	1 (0.4%)	0 (0.0%)	1.00†
Coronary heart disease	1 (0.4%)	2 (0.7%)	1.00†
Chronic respiratory insufficiency	6 (2.1%)	4 (1.4%)	0.52
In the year preceding index date			
Corticosteroid use	216 (76.9%)	223 (79.4%)	0.47
csDMARDs use	182 (64.8%)	180 (64.1%)	0.86
bDMARDs	183 (65.1%)	181 (64.4%)	0.86
Osteoporotic fractures	4 (1.4%)	2 (0.7%)	0.69†
Primary endpoint (use of preventive medications)	130 (46.3%)	113 (40.2%)	0.15
At least one vaccine	99 (35.2%)	85 (30.2%)	0.21
Lipid-lowering drug	22 (7.8%)	23 (8.2%)	0.88
Antiosteoporosis drug	41 (14.6)	20 (7.1%)	0.004
Cardiologist/pulmonologist consultation	22 (7.8%)	36 (12.8%)	0.052
Emergency hospitalisations or unscheduled hospitalisations for fracture, cardiovascular event or infection	19 (6.8%)	10 (3.6%)	0.086

*P value obtained by Wilcoxon-Mann Whitney test for the quantitative variable, χ^2 test for most qualitative variables.
†P value obtained by Fisher's exact test for variables with small numbers of occurrences.
bDMARDs, biologic disease-modifying antirheumatic drugs; csDMARDs, conventional synthetic disease-modifying antirheumatic drugs; IRD, inflammatory rheumatic disease.

The COmorbidities, EDucation in Rheumatoid Arthritis (COMEDRA) trial is based on a nurse-led intervention. Its impact on screening and preventing comorbidities over a 3-year period involved 776 patients with RA.[13] Over this period, most comorbidities increased, in line with age-related expectations. However, improvements were noted in CV risk screening, vaccination coverage and bone density assessments. The absence of a control group complicates definitive conclusions regarding the intervention's true efficacy. In our present study, we establish a control group, hypothesising that patients from other healthcare settings likely did not undergo systematic screening. For ethical reasons, it is currently not feasible to design a randomised study with a control arm where patients with IRD would not undergo screening for their comorbidities. Our study represents, to our knowledge, the first attempt to compare the effectiveness of systematic screening against standard care in this population. The current findings support resource allocation for screening, despite potential time and resource constraints, warranting further medicoeconomic studies.

Our study presents several other noteworthy strengths. First, the use of objective endpoints such as dispensation of preventive medications and hospitalisation rates allowed for a comprehensive assessment of the impact of systematic screening on patient outcomes. Additionally, we confirmed the first results using a propensity score matching to ensure comparability between exposed patients and controls, minimising the potential for confounding and enhancing the robustness of our results. Finally, the study was conducted in a routine clinical practice setting, enhancing the generalizability of the findings to real-world patient populations.

Table 4 Comparison of primary and secondary endpoints at 1 year following index date in the population selected after the use of propensity score

	Exposed patients, n (%)	Controls, n (%)	OR (95% CI) P value
Primary endpoint (use of preventive medications)	154 (54.8)	125 (44.5)	1.6 (1.1 to 2.2) p=0.02
At least one vaccine	118 (42.0)	93 (33.1)	1.6 (1.1 to 2.1) p=0.03
Lipid-lowering drug	54 (19.2)	29 (10.3)	2.0 (1.2 to 3.3) p=0.008
Antiosteoporosis drug	40 (14.2)	24 (8.5)	2.3 (1.3 to 4.1) p=0.005
Antiplatelet drug	17 (6.0)	12 (4.3)	1.4 (0.7 to 3.1) p=0.34
Cardiologist/pulmonologist consultation	68 (24.2)	38 (13.5)	2.2 (1.5 to 3.3) p=0.002
Emergency hospitalisations or unscheduled hospitalisations for fracture, cardiovascular event or infection	20 (7.1)	43 (15.3)	0.4 (0.2 to 0.8) p=0.003
Hospitalisations for fracture	3 (1.1)	7 (2.5)	0.4 (0.1 to 1.7) p=0.22
Hospitalisations for cardiovascular event	3 (1.1)	5 (1.8)	0.6 (0.1 to 2.5) p=0.48
Hospitalisation for infection	2 (0.7)	11 (3.9)	0.2 (0.04 to 0.82) p=0.03
Use of antibiotics	181 (64.4)	178 (63.3)	1.0 (0.7 to 1.5) p=0.80

P value: p value of conditional logistic regression for matched pairs (after 1:1 propensity score matching) adjusted on unscheduled hospitalisations (for fracture, cardiovascular event or infection) or hospitalisation in emergency (all causes) in the year preceding index date, at least one cardiologist or pulmonologist consultation in the year preceding index date and use of conventional synthetic disease-modifying antirheumatic drugs (csDMARDs), biologic DMARDs and drugs included in the primary endpoint in the year preceding index date.

Our study also suffers from some limitations. First, the study design was observational, limiting our ability to establish causality between systematic screening and improved outcomes. Despite adjustments and propensity score matching, residual confounding may still be present. Then, the study was conducted at a single centre, potentially limiting the generalisability of the findings to other healthcare settings with different patient populations and resources. One might hypothesise that the quality of medical care received by the control subjects could be inferior to that of those under university hospital supervision. Nevertheless, control patients were living in the same geographic areas as exposed ones and were all treated in a hospital. In France, both university and non-university hospitals operate under the same pricing and reimbursement framework, suggesting a comparable level of service quality. Additionally, to account for potential biases, the deprivation index was incorporated into the propensity score. The study may present potential bias. Patients who underwent systematic screening may have been more engaged in their healthcare, leading to better adherence to preventive measures and potentially biasing the results. While our study focused on medication dispensation and hospitalisation rates, other important outcomes such as quality of life, disease activity and healthcare utilisation could not be captured and were not assessed. Moreover, the follow-up period of 1 year may not capture long-term effects of systematic screening on patient outcomes. Future studies with longer follow-up durations are warranted to assess sustained benefits.

Following EULAR's points to consider for reporting, screening for and preventing comorbidities,[7] our systematic screening programme encompassed comprehensive clinical, biological and imaging assessments to detect or assess CV risk, malignancies, infections, peptic ulcers, osteoporosis and depression. However, the management of peptic ulcers and depression was not within the scope of the recommendations provided at the end of the evaluation process. This is primarily due to the lack of specific interventions within our programme to evaluate and manage these conditions.

We thus excluded the evaluation of antipeptic ulcer medication usage, cancer detection and depression management as outcomes of the present study. The review of approximately 200 medical records revealed that although close to 60% of patients necessitated updates to their malignancy screenings, our screening protocol led to the detection of cancer in only four cases (unpublished data). We recognise this as a limitation of our study and our clinical practice. We

are actively working on improving our management strategies to include these important aspects of patient care. This underscores the necessity for improved management strategies within our clinical practice.

Consequently, no definitive conclusions can be drawn regarding the impact of screening for these specific comorbidities in this context.

In conclusion, our study provides evidence supporting the effectiveness of systematic screening for multimorbidities in patients with IRD, leading to increased use of preventive medications and reduced hospitalisation rates. Future research should further investigate the long-term impact of systematic screening on patient outcomes and address potential biases inherent in observational studies.

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Contributors Conception or design of the work: CID, GD, GM and JM. Acquisition and analysis of data for the work: VG and GM. Interpretation of data for the work: CID, VG and GM. Drafting the work: CID and VG. Revising it critically: GD, GM and JM. Final approval of the version to be published: CID, VG, GD, GM and JM. Guarantor: CID. I employed AI to review English and refine certain formulations following the manual composition of the entire manuscript.

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