Non-invasive test-driven modeling of patient eligibility for resmetirom therapy in MASLD: Data from the German SLD-Registry

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Introduction

Advanced Fibrosis related to metabolic dysfunction-associated steatotic liver disease (MASLD) is increasingly prevalent and associated with adverse outcomes and higher mortality (1). Non-invasive tests (NITs) are central to identify patients at increased risk of disease progression who may benefit from a pharmacological intervention (2).

Aim

This study aimed to characterize patients eligible for resmetirom treatment based on NITs in a real-world cohort in Germany.

Methods

The German SLD-Registry

- Prospective registry study in secondary and tertiary care with yearly follow-up
- Patient have been enrolled since December 2020
- Data base cut as of 15 July, 2025 including follow up visits up to year three
- Liver stiffness measurement (LSM) by vibration-controlled transient elastography (VCTE)
- Eligibility for resmetirom: VCTE 10-19.9 kPa and platelet count ≥140 × 10⁹/L at baseline (3)
- Non-eligibility: VCTE <10 kPa, ≥20 kPa
- Demographic characteristics, clinical parameters, and cardiometabolic risk factors were analyzed

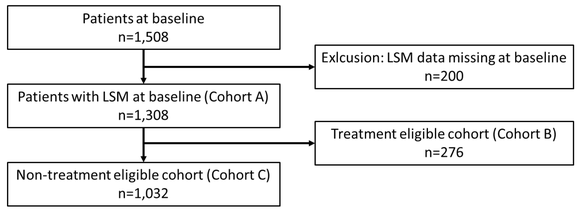

Fig. 1. Flow diagram of included patients

Results

Table 1. Baseline characteristics, n=1,308

Variable	Total cohort (A)
Sex, male	50.2 (656/1,308)
Age (years)	52.1 ± 13.4
Higher education	30.5 (192/630)
LSM (kPa)	9.7 ± 8.2
CAP (dB/m)	317.4 ± 52.6
FIB-4	1.5 ± 1.2
Obesity (BMI >30kg/m²)	62.7 (820/1,308)
Diabetes mellitus	41.8 (545/1,305)
Hypertension	58.6 (766/1,308)
Dyslipidemia	74.1 (758/1,023)

Denominators based on patients with available data.

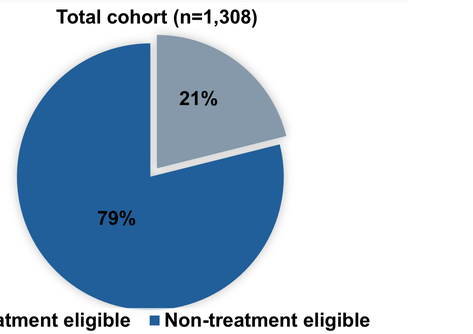

Fig. 2. Distribution of treatment eligible vs. non-eligible patients

Table 2. Comparison of both subgroups

Variable	Treatment eligible (Cohort B)	Non-treatment eligible (Cohort C)	*P-value*
Demographics			
Sex, male	43.5 (120/276)	51.9 (536/1,032)	0.015
Age (years)	54.5 ± 12.9	51.4 ± 13.5	< 0.001
Higher education	18.9 (20/106)	32.8 (172/524)	0.037
Non-invasive tests			
LSM (kPa)	12.6 ± 2.6	8.9 ± 9.0	< 0.001
CAP (dB/m)	325.5 ± 51.6	315.1 ± 52.7	0.005
FIB-4	1.5 ± 0.9	1.5 ± 1.3	0.908
Comorbidities			
Obesity	72.1 (199/276)	60.2 (621/1,032)	< 0.001
Diabetes mellitus	53.3 (146/274)	38.7 (399/1,031)	< 0.05
Hypertension	69.2 (191/276)	55.7 (575/1,032)	< 0.001
Dyslipidemia	78.8 (141/179)	73.1 (617/844)	0.139
Laboratory values			
ALT (U/l)	58.4 ± 41.5	55.0 ± 41.1	0.228
AST (U/l)	44.0 ± 23.7	39.8 ± 28.0	0.012
GGT (U/l)	110.4 ± 169.9	94.7 ± 133.1	0.155
Platelets (x10⁹/L)	250.5 ± 69.2	241.7 ± 75.4	0.066

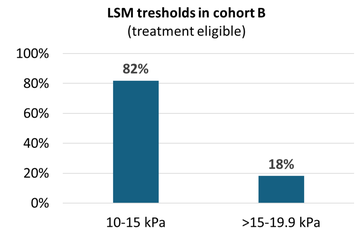

Fig. 3. Subgroups within cohort B. 18% patients had higher LSM-findings above 15kPa.

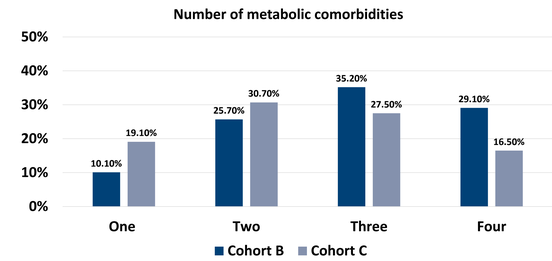

Fig. 4. Distribution of metabolic comorbidities between Cohort B and C. Metabolic comorbidities were Obesity, Hypertension, Dyslipidemia, Diabetes mellitus. The treatment eligible cohort (cohort B) showed a higher distribution of three or more metabolic comorbidities simultaneously.

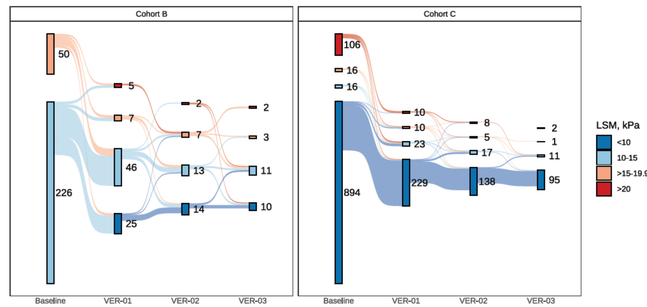

Fig. 5. Progression of LSM. Over three years of follow-up, progression from 10-15 kPa to >15-19.9 kPa and from >15–19.9 kPa to >20 kPa occurred in 7.7% of patients in cohort B with available longitudinal data.

Conclusions

In this large real-world MASLD cohort, approximately one in five patients met non-invasive criteria for resmetirom treatment eligibility. Identification of eligible patients using NITs may support risk stratification and guide pharmacological treatment strategies in routine clinical practice.

Acknowledgements

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SLD Deutsches SLD-Register

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