Undertreatment of Female Patients in Lipid-Lowering for Secondary Prevention in Europe, Canada, South Africa, Middle East and China

- Results of the Dyslipidemia International Study (DYSIS) -

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DYSIS
Dyslipidemia International Study

Herzzentrum Ludwigshafen and Institut für Herzinfarktforschung Ludwigshafen, Germany for the DYSIS Study Group

Declaration of interest

- Consulting/Royalties/Owner/ Stockholder of a healthcare company (MSD)

Declaration of Interest

- AKG, KKP, GDF, JF received honoraria from Merck & Co., Inc. for participation in DYSIS steering committee meetings
- DL, PB are employed by Merck & Co. Inc, Kenilworth, NJ, USA
- MH no conflict of interest
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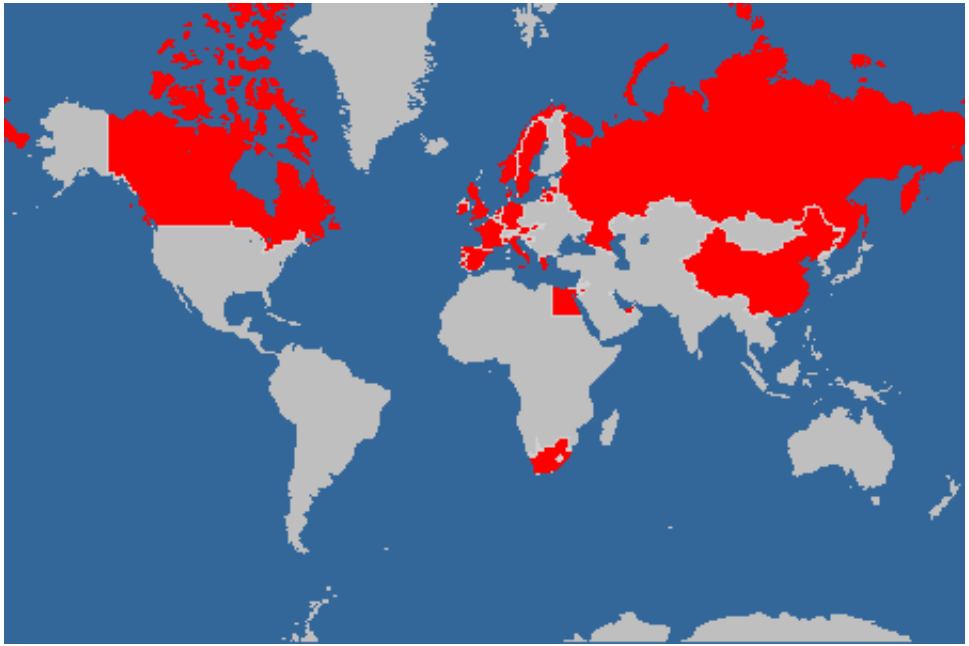
Background

Recent guidelines of EAS/ESC as well as AHA/ACC recommend LDL-C <70 mg/dl in very high risk patients.

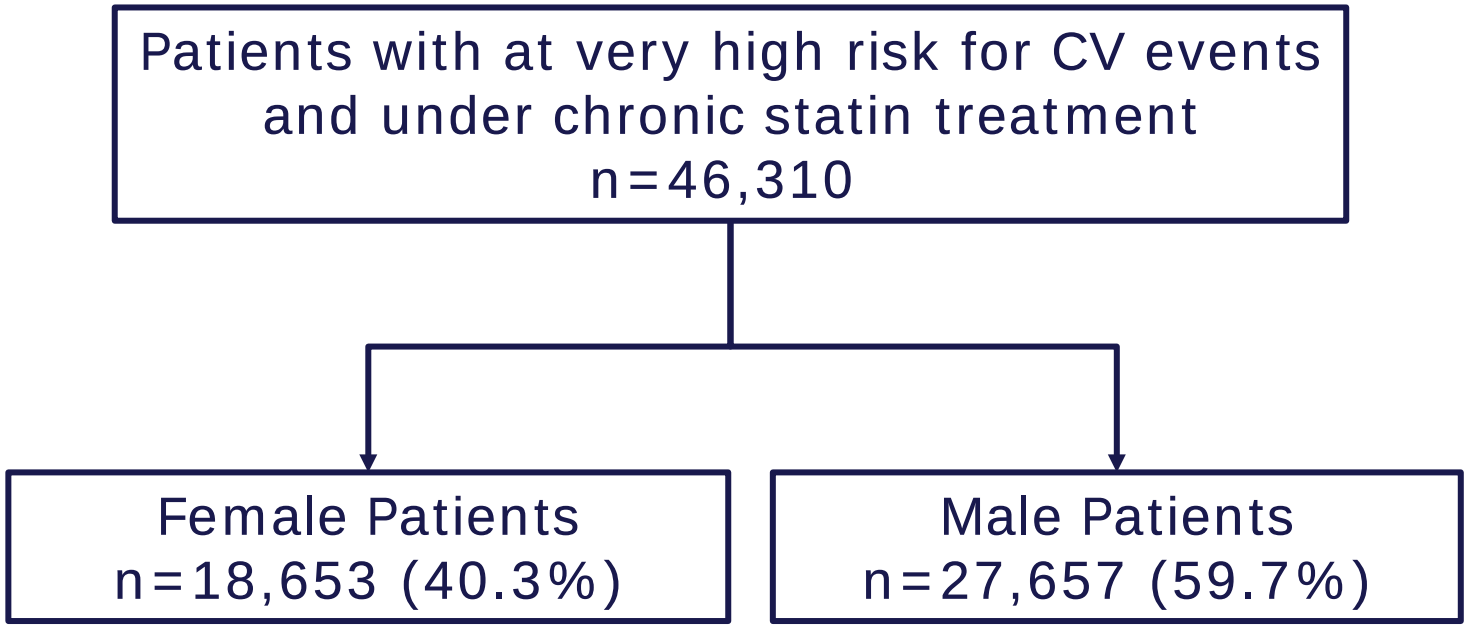
Despite chronic statin treatment, only a minority of patients achieve this target. Little is known if gender might have an impact on treatment and LDL-target achievement in clinical practice.

Methods



- Between 2008 and 2012, consecutive statin-treated outpatients were enrolled in 26 countries including Europe, Canada, South-Africa, Middle East and China, (DYSIS = Dyslipidemia International Study) to assess LDL-C goal attainment for secondary prevention. Data were collected under real life conditions in the outpatient setting. We examined the impact of female gender on LDL-target-achievement.

Methods


Patients with at very high risk for CV events and under chronic statin treatment
n=46,310
Female Patients
n=18,653 (40.3%)
Male Patients
n=27,657 (59.7%)

Patient Characteristics

	Female Pts n=18,653	Male Pts n=27,657	p-value
Age (years)	68.1	65.9	<0.001
BMI (kg/m²)	27.7 ± 5.8	27.7 ± 5.8	<0.05
Hypertension	79.4%	75.6%	<0.001
Diabetes	55.3%	47.0%	<0.001
Ischemic Heart Disease	46.1%	57.6%	<0.001
Cerebrovascular Disease	17.5%	16.5%	<0.01
Peripheral Artery Disease	6.0%	8.8%	<0.001
Heart Failure	11.8%	10.7%	<0.001
Sedentary Lifestyle	40.9%	40.2%	=0.18
Current / Former Smoker	6.3% / 10.9%	20.2% / 42.9%	<0.001

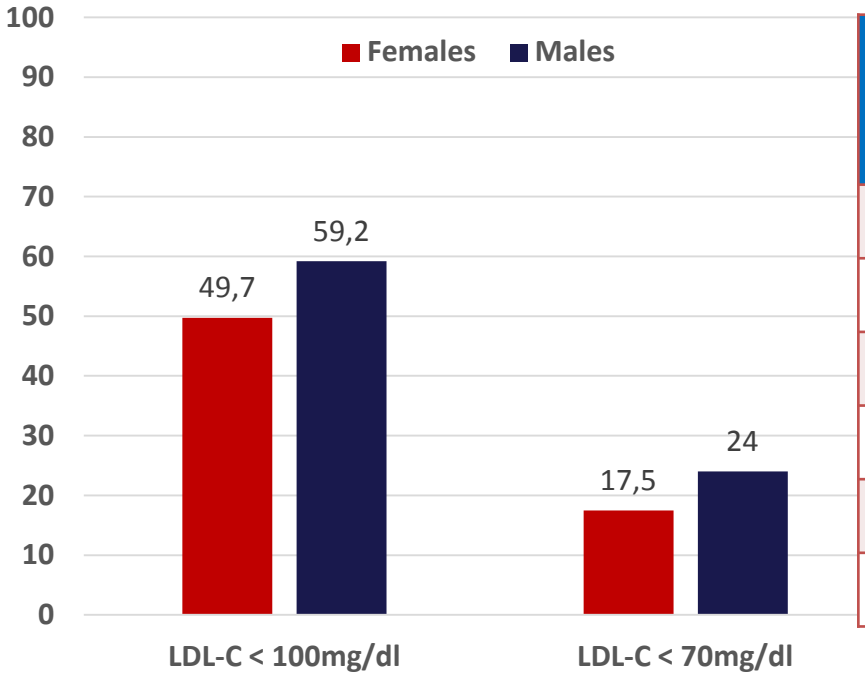
Lipid-Lowering Treatment and Statin Dosages

	Female Pts n=18,653	Male Pts n=27,657	p-value
Simvastatin	43.1%	38.5%	<0.001
Dose (mg/day)	23.6 ± 11.1	25.6 ± 11.9	<0.001
Atorvastatin	36.5%	39.5%	<0.001
Dose (mg/day)	20.5 ± 13.0	23.1 ± 17.9	<0.001
Rosuvastatin	11.5%	13.0%	<0.001
Dose (mg/day)	13.6 ± 9.8	14.7 ± 10.5	<0.001
Pravastatin	5.2%	5.4%	=0.21
Dose (mg/day)	26.4 ± 11.3	27.9 ± 12.0	<0.01
Ezetimibe	4.6%	6.1%	<0.01

Lipid Values under Chronic Statin Treatment in Practice

	Female Pts n=18,653	**Male Pts** n=27,657	**p-value**
Total Cholesterol (mg/dl)	182	165	<0.001
LDL-Cholesterol (mg/dl)	100	92	<0.001
HDL-Cholesterol (mg/dl)	51	44	<0.001
Triglycerides (mg/dl)	136	129	<0.001

LDL-C-Target Attainment / Predictors



	Univariate Analysis OR (95%CI)	Multivariate AnalysisOR (95%CI)
Age (years)	0.80 (0.76-0.83)	1.46 (0.95-2.25)
Female Gender	0.95 (0.91-0.98)	0.68 (0.47-0.97)
Documented CVD	0.60 (0.58-0.63)	0.59 (0.40-0.88)
Diabetes	0.65 (0.62-0.67)	0.50 (0.35-0.72)
Heart Failure	0.61 (0.56-0.65)	1.40 (0.732.66) -
Statin dose (high vs low)	1.00 (0.92-1.09)	1.26 (0.82-1.94)

Conclusions

- In clinical practice, female patients at very high risk for CV events were treated with less potent statins as well as with lower doses of statins.

- Female patients had a 32% lower chance to reach the LDL-C-targets (<70mg/dl) currently recommended by ESC guidelines