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Prevalence and Prognostic Correlates of Anemia in Patients Presenting for ST-elevation Myocardial Infarction in the Tunisian Context

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BACKGROUND Anemia is regarded as a powerful predictor of in-hospital major events in patients presenting for acute coronary syndrome. We sought to determine clinical and prognostic correlates of anemia in patients presenting for acute ST-elevation myocardial infarction (STEMI) in our region.

METHODS A total of 1498 consecutive patients presenting to our center for STEMI between January 1998 and October 2014 were included in this retrospective registry. Patients were managed either by thrombolysis, primary percutaneous coronary intervention (pPCI) or conservative medical treatment. Anemic patients (i.e. with hemoglobin <11 g/dL) and non anemic patients were compared regarding clinical characteristics and in-hospital prognosis. Predictive factors of in-hospital death were determined.

RESULTS Out of the overall population, 249 (16.6%) patients were anemic. Reperfusion strategies were comparable between the two sub-groups. Anemic patients were more likely to be elderly (23.6% vs. 13.3%, p<0.001), hypertensive (37.8% vs. 28.6%, p=0.004) and diabetic (41.4% vs. 34.5%, p=0.038). In-hospital mortality rate was significantly higher in anemic patients (22.9% vs. 5.8%, p<0.001). In univariate analysis, factors significantly associated to in-hospital death in anemic patients were a management by pPCI (38.2% vs. 18.2%, p=0.001), history of hypertension (52.6% vs. 33.3%, p=0.008), diabetes mellitus (56.1% vs. 37%, p=0.01), heart failure on-admission (49.1% vs. 17.7%, p<0.001) and renal failure on-admission (31.6% vs. 12.4%, p=0.01). In multivariate analysis, independent factors associated with in-hospital death were the absence of pPCI use (HR=2.7, 95% CI: 1.33-5.55, p=0.006), history of hypertension (HR=2.15, 95% CI:1.11-4.18, p=0.023), heart failure on admission (HR=4.04, 95% CI: 2.05-7.98, p<0.001) and renal failure on-admission (HR=2.7, 95% CI: 1.26-5.89, p=0.01).

CONCLUSION In the present study, anemic patients presenting for STEMI have a higher in-hospital mortality rate. The absence of pPCI use, hypertension, heart failure on-admission and renal failure on-admission were independently associated to in-hospital death in this subset.

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Optimal Aorto-ostial Lesion Treatment With Flash Ostial Balloon Is Feasible and Safe

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BACKGROUND The anatomic challenges of percutaneous endovascular stenting of aorto-ostial lesions remain a difficult task with low technical success, higher complication rates and increased target vessel restenosis rates. We sought to evaluate feasibility, efficacy, and safety of the Ostial Flash (Access Closure, Santa Clara, CA) balloon for treating aorto-ostial disease.

METHODS We retrospectively reviewed all the patients treated in our lab for aorto-ostial coronary or peripheral artery disease between December 2011 and May 2014. Every case where the Ostial Flash(OF) balloon was attempted was analyzed. Procedural characteristics, clinical characteristics, and 6 months clinical follow-up data were collected and analyzed.

RESULTS Total of 229 patients were treated for aorto-ostial lesions involving coronary, saphenous bypass graft, renal, mesenteric, or subclavian lesions. In 136 (97.14%) of the 140 patients the OF balloon was used successfully as intended during the procedure. (Table) In 4 patients (2 RCA, 1 LM and 1 Renal) the OF balloon use was unsuccessfull. Complications included: 1 perforation in ostial RCA requiring a covered stent, 1 dissection at the distal edge of the stent requiring second stent, 1 transient hemodynamic instability (LM) and one case of deformity of contralateral renal stent At 6 months follow-up the clinical restenosis rate was relatively low (Table).

CONCLUSION Ostial Flash balloon can be used to treat aorto-ostial lesions via radial as well as femoral approach with high success rate and low complication rate. The use of ostial flash may reduce proximal lesion miss and restenosis rate.

Target Lesion	LM	RCA	SVG	Renal	Subclavian
OF Attempted	49	66	5	19	1
OF successfully used	47 (95.91%)	64 (96.96%)	4 (80%)	19 (100%)	1 (100%)
Fluorsocopy time (mean ± SD)	33.10 ± 20.42	31.50 ± 17.53	53.62 ± 50.65	32.26 ± 27.39	39
Contrast (ml)	289. 28 ± 138.36	245.50 ± 81.40	310 ± 78.79	150 ± 52.71	220
Procedure Time	2:10 ± 1:08	1:56 ± 0:45	2:57 ± 1:17	2.13 ± 0:55	1.45
>1 stent for ostial target lesion	0	1	0	1	0
Ostial Flash Size (mean)	4.0mm	3.5 mm	4.0 mm	5.00 mm	5.0 mm
Time to use ostial Flash balloon (minutes)	5± 2	5 ± 2	5 ± 3	4 ± 2	8
Access: Radial/ Femoral/ Brachial	7/41/1	22/44/ 0	1/4/00	6/11/02	0/1/0
Complication (Attributed to Ostial Flash)	1	2	0	1	0
6 months Followup completed	48(1 Death)	66	4(1 Death)	17(Lost to f/up 2)	1
Successful cath placement in Target vessel	7	5	1	1	NA
>50% or FFR positive ISR @ 6 Months	2(4.09%)	3(4.54%)	0	1(5.6%)	NA

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Prevalence and Clinical Implication of T-wave Inversion in Patients With Non-ST Elevation Myocardial Infarction

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BACKGROUND The current guidelines for the management of non-ST elevation acute coronary syndrome include T-wave inversion and ST-segment depression as a manifestation of ischemia. However, the clinical implication of T-wave inversion has not been evaluated specifically in patients with non-ST-segment elevation myocardial infarction (NSTEMI).

METHODS We retrospectively reviewed 481 consecutive NSTEMI patients who underwent coronary angiography. NSTEMI was diagnosed according to the third universal definition of myocardial infarction. ST segments were classified into four categories: T-wave inversion (≥0.1mV in more than two contiguous leads), ST depression (≥0.05mV), strain-pattern ST change, or no ST change. Obstructive coronary artery was defined as stenosis ≥70% (50% for left main). Impaired coronary flow was defined as TIMI flow grade of less than 3. Angiographic findings were compared between patients with T-wave inversion and no ST change.

RESULTS Among 481 patients, 109 patients (23%) had T-wave inversion, 155 patients (32%) had ST depression, and 191 patients (40%) had no ST change. There was no significant difference between patients with T-wave inversion and those without ST change in the rate of obstructive coronary artery (73% vs. 75 %, p=0.58), impaired coronary flow (39% vs. 39%, p=0.97), or in-hospital revascularization (58% vs. 60%, p=0.68). On analysis stratified according to the depth and the number of leads with T-wave inversion, neither deep nor diffuse T-wave inversion was associated with obstructive coronary artery or impaired coronary flow.

CONCLUSION T-wave inversion, even deep or diffuse T-wave inversions, did not increase the likelihood of obstructive coronary artery or impaired coronary flow in NSTEMI patients.

Angiographic findings in relation to the depth and extent of T-wave inversion (TWI)

Depth of TWI	no ST change	≧1 mm (n=109)	≧2 mm (n=83)	≧3 mm (n=53)	≧4 mm (n=28)	≧5 mm (n=20)
Obstructive coronary artery	75.4%	72.5% (p=0.58)	74.7% (p=0.9)	75.5% (p=0.99)	78.6% (p=0.71)	70.0% (p=0.6)
Impaired coronary flow	38.7%	38.5% (p=0.97)	38.6% (p=0.98)	34.0% (p=0.53)	35.7% (p=0.76)	35.0% (p=0.74)
Number of leads with TWI	**no ST change**	**≧2 leads (n=109)**	**≧3 leads (n=78)**	**≧4 leads (n=58)**	**≧5 leads (n=44)**	**≧6 leads (n=31)**
Obstructive coronary artery	75.4%	72.5% (p=0.58)	76.9% (p=0.79)	72.4% (p=0.65)	68.2% (p=0.33)	71.0% (p=0.6)
Impaired coronary flow	38.7%	38.5% (p=0.97)	42.3% (p=0.59)	41.4% (p=0.72)	36.4% (p=0.77)	29.0% (p=0.3)

p value; compared to no ST change group