



**Cohort 1
2014-2016**

MediPIET Report

Summary of work activities

**Dr Salsabil REJAIBI,
Tunisia**



Training site: National Observatory of New and Emerging diseases (ONMNE), Tunis, Tunisia

National Supervisors: Prof. Nissaf Bouafif ép Ben Alaya & Prof. Mohamed Chahed

Scientific Coordinator: Dr. Adela Paez Jimenez

Pre-fellowship short biography

Salsabil Rejaibi is a medical Doctor graduated from the Faculty of Medicine of Tunis. She is currently a fourth year intern in Preventive Medicine (Public health).

During these four years of internship 2014 - 2017, she has been working as a junior epidemiologist First, at the National Observatory of New and Emerging Diseases (Epidemiological Surveillance Department) where she has gained experience especially in infectious disease surveillance, epidemiological investigation, risk assessment and public health response to acute and emerging threats, then in the Epidemiological Department of cardiovascular diseases in the Faculty of Medicine of Tunis where she has gained experience in non-communicable diseases risk factors surveillance.

Fellowship projects

Surveillance projects

Evaluation of West Nile Virus surveillance system 2013-2015, Tunisia.

Background: Following two local West Nile virus (WNV) outbreaks in central-east Tunisia in 1997 and 2003, passive surveillance of WNV neuro-invasive infections was implemented. In 2012, following a more widespread WNV outbreak, surveillance was extended to the entire country. This study assesses performance of the WNV surveillance system during 2013-2015.

Methods: Completeness, Timeliness, Representativeness and validity of the surveillance system in 2013-2015 were assessed using available data. Data completeness was measured by the proportion of missing or inconsistent data in the notification form for dates of hospitalization, notification and specimens' collection. Timeliness was estimated by the proportion of suspected cases notified timely. Representativeness was assessed by the proportion of notification from each governorate and by age group and gender. Validity was measured by the proportion of reported cases complying with case definition and the proportion of biological results confirmed with serum-neutralization-technique.

Findings: Overall completeness of hospitalization, notification and first biological sample dates were 18.8%, 50.6% and 75.9% respectively. Median time from hospitalization to notification was 11±2.1 days with 40.9% of notifications occurred timely. Almost 70% of notifications were from the

northeast region. However, with no zero reporting is not possible to distinguish whether some regions have no cases or no notifications. The proportion of reported cases complying with case definition is 31%. In 2013 and 2014, the lab confirmation was based on routine serological techniques. In 2015, only one case among 20 probable cases was confirmed with serum-neutralization-technique.

Conclusion: The absence of zero reporting, the delay in notification and the absence of an adequate feedback are the main current weaknesses of the system, which should improve with the implementation of the electronic reporting system and increasing awareness, especially among clinicians.

Status: Completed. Role: Elaboration of the evaluation protocol and data collection, analysis and interpretation. Outputs: Evaluation report (French language). Abstract accepted as oral presentation at the 2nd Annual MediPIET Scientific Conference 2016, Marrakech, Morocco.

Implementation of event based surveillance network based on emergency departments, Tunisia, 2015-2016

Background: Facing the risk of emerging and re-emerging diseases, indicator based surveillance is no longer sufficient to respond quickly and in a flexible and adequate way to public health challenges. Therefore, Event Based Surveillance (EBS) methods are needed to ensure a proper response to public health security threats. In 2015, the National Observatory of New and Emerging Diseases (ONMNE) has designed and started the implementation of an event-based surveillance network of hospital emergency departments.

Methods: A protocol for an exhaustive syndromic surveillance network involving all hospital and clinics (public and private) emergency units was developed and agreed with different partners. Case definitions were defined for the five following syndromes: Severe respiratory syndrome, Meningitis or Meningoencephalitis, Diarrhea, Poisoning and Hemorrhagic fever. Focal point in each emergency department should submit in an online platform aggregated data every week, including Zero Reporting. The ONMNE will carry out data validation, analysis and interpretation and will be in charge of updating the webpage weekly with the epidemiological indicators. Regarding the response, signals generated by the surveillance system will be validated and preliminary investigations will be done in collaboration with partners and in accordance with response protocols of the Ministry of Health.

Next steps: A software application allowing real-time reporting is currently under development.

Status: completed. Role: Participated in protocol design and writing, precisely for the early warning function and the surveillance network. Facilitated the brainstorming sessions with clinicians to validated the events to be notified. Participated in the different workshops with Epiconcept experts to develop the online platform and in the meetings of the Advisory Committee.

Outbreak Investigations

Investigation of a probable brucellosis outbreak in Zaghuan governorate, Tunisia, 2016

Brucellosis is endemic in humans and animals in Tunisia and a mandatory notifiable disease since 1986. In summer 2016, ONMNE was invited to investigate a cluster of 6 confirmed brucellosis human cases in Zaghuan governorate. All cases live in a rural area and referred consumption of unpasteurized raw milk and dairy products from farm animals, the probable source of infection according to the descriptive epidemiological data. No case had consumed raw milk or dairy produced locally. According to number of cases reported during the same period in 2014 and 2015, the current figure was under the threshold. Still, in collaboration with the regional directorate of health (DRS) in Zaghuan governorate and the Primary Healthcare Direction (DSSB), cases were contacted to follow-up on treatment and final outcome and also to provide them with detailed information about preventive and control measures against human and animal brucellosis.

Status: Completed. Role: Main investigator / verification of the probable outbreak and elaboration of the questionnaire.

Investigation of a probable transfusion transmitted malaria case in Tunisia, August 2016

Malaria is a mandatory notifiable disease in Tunisia and since 1979, autochthonous malaria has been eliminated with a persistent risk of resurgence.

On 16th August 2016, the Strategic Health Operations Center (SHOCROOM) of the Ministry of Health informed the ONMNE about a malaria case most probably transfusion-related. This immunosuppressed patient with medullary aplasia has a history of polytransfusion with blood and platelets but no travel outside the country since June. An investigation was immediately initiated, including tracing of each blood transfusion. A donation from a former resident in an endemic malaria area was identified. As a result, screening guidelines for accepting or deferring donors who have been in malaria-endemic areas were agreed with all relevant health authorities and are currently under implementation.

Status: Completed. Investigation report shared with all relevant actors and recommended malaria screening guidelines for blood donors agreed to be implemented.

Role: Elaboration of the questionnaire for donors and participation to different meetings with clinicians to define response priorities

Investigation of a foodborne outbreak in a primary school, March 2017, Tunis, Tunisia

Background: On 18 and 19 March 2017, students of OKBA 2 School in Tunis governorate presented to the emergency unit of the district hospital with complaints of abdominal pain, vomiting and diarrhea. All students have eaten from a specific food vendor in front of the school and had neither eaten any other common meal that day nor the previous day. A foodborne disease outbreak was suspected. In collaboration with the regional directorate of health (DRS) in Tunis governorate, ONMNE conducted an investigation to verify the outbreak, identify the source and implement control measures.

Methods: A case-control study was conducted. A case was any student of OKBA 2 School with one of the following symptoms: vomiting, diarrhea, fever or abdominal pain from 17th to 19th March 2017. Controls were randomly selected among all OKBA 2 school students with no symptoms. Active case search was done in the school to identify more cases and collect additional clinical specimens for laboratory testing. Also, an environmental assessment was done and food samples were sent to the reference laboratory at Institute Pasteur, Tunis.

Results: A total of 24 cases and 47 controls were selected. Mean age of cases was 9.7 ± 0.06 years with a sex ratio F/M equal to 1.45. Median incubation period was 60 minutes. In multivariate analysis, ingestion of an eggs-cheese-tuna pudding was associated with foodborne illness ($p=0.01$). While specimens and food samples were negative, the environmental assessment revealed serious gaps in the overall hygiene and the establishment was immediately closed for ten days.

Conclusions: A foodborne gastroenteritis outbreak occurred in a school in Tunis governorate from 17 to 19th March 2017. Although no etiologic agent was identified, the source was related to a food vendor in front of the school. Rapid control measures with closing of the establishment of such vendor during ten days helped in controlling the outbreak.

Status: Completed. Role: Lead of the outbreak investigation; protocol for the analytical study; data entry, data analysis and interpretation. Outputs: Investigation report shared with all relevant actors.

Research projects

National point-prevalence of healthcare-associated infections in Tunisia, Study NOSOTUN 2012.

Background: On any given day, 5.7% of patients in European hospitals have at least one health-care associated infection (HAI), a potentially preventable adverse event with considerable medical and economic consequences. In 2012, a national point-prevalence study was conducted in Tunisia to estimate total burden and describe HAIs.

Methods: Data were collected from all hospitals involved in NOSOTUN survey using three paper-based questionnaires (establishment, service and patient). Hospitalized patients for at least 48 hours on the day of the point prevalence survey were eligible for inclusion. Occurrence of HAI was ascertained through review of diagnostic-related ICD-10 codes on discharge from hospital. Cross tabulation and measures of association were estimated using SPSS 20.

Results: A total of 8649 patients were surveyed in 85 (59%) public and 59 (41%) private health structures. Overall HAI prevalence was 6.6 % [6.2% -7.2%] with a significant difference ($p < 0.001$) between private (9.8%) and public (6.2%) structures. Among the 574 HAIs, the most frequently reported types were respiratory tract infections (25.7%), urinary tract infections (22.3%), and bloodstream infections (2.8%). The highest prevalence was found in the intensive care unit (28.8%), followed by versatile services (18.3%).

Conclusion: On any given day, 6.6 % of hospitalized patients in Tunisia suffer a HAI. Full implementation at hospital level of the national strategy of hygiene and health care security is recommended, especially in private hospitals, and with mandatory surveillance of HAIs in intensive care units.

Status: Completed. Role: in charge of data analysis and interpretation and report writing.

Outputs: Technical report (French language) and oral presentation at the 1st Annual MediPIET Scientific Conference, Skopje, Former Yugoslav Republic of Macedonia, 18-19 November 2015.

Description of antimicrobial use in Tunisian health care facilities, 2012

Background: Inappropriate use of antibiotics is a worldwide concern because of the large bacterial resistance it generates. To improve antimicrobial use practices in Tunisian health care facilities, a better understanding of prescribing practices is required.

Methods: Data of 2012-national point prevalence survey of healthcare associated infections were collected from 144 health care facilities between November and December 2012, using medical records and three paper-based questionnaires (establishment, service and patient). All hospitalized patients for at least 48 hours on the day of the survey were eligible for inclusion. Data recorded included demographic characteristics, bacterial colonization, discharge diagnosis; antibiotic therapy and pathogen. Data were analyzed using SPSS 20.

Results: Survey was conducted in 85 (59%) public and 59 (41%) private hospitals. Among 8649 hospitalized patients, 3746 (43.3%) received at least one antibiotic at the time of the survey. Reasons to administer antimicrobials were to treat community-based infections in 55% of patients, health care associated infection in 14%, surgical prophylaxis in 22%, medical prophylaxis in 7%, and non-infection related reasons in 2%.

The prevalence of the antimicrobial use was significantly different between public (40.7%) and private (63.5%) facilities ($p < 0.001$), also between medical specialties (41.7%), surgical specialties (44.3%) and intensive care units (46.4%) ($p = 0.005$). Beta-lactams were the most common antibiotics used overall (35.2%), followed by quinolones (9.6%) then aminoglycosides (6.5%). *Pseudomonas aeruginosa* (19%), *Klebsiella pneumoniae* (17%), and *Acinetobacter baumannii* (15%) were the most common pathogens.

Conclusion: Antibiotic use is more frequent in Tunisian hospitals than in European hospitals (32.7%). To improve antibiotic use practices in Tunisian hospitals, it's recommended to increase awareness of this issue among Tunisian health care personal especially in private sector.

Status: Completed. Role: in charge of data analysis and interpretation and report writing.

Outputs: Technical report (French language) and oral presentation at the 1st Annual MediPIET Scientific Conference, Skopje, Former Yugoslav Republic of Macedonia, 18-19 November 2015.

National point prevalence survey of Human Papillomavirus infections in Tunisia 2012 - 2014: Genotypes and risk factors

Background: Although the majority of Human Papillomavirus (HPV) infections are asymptomatic, the persistent infection with high-risk HPV genotypes may lead, without treatment, to invasive cervical cancer. This study aims to determine the prevalence of HPV infections, to identify risk factors and main circulating genotypes.

Methods: National point-prevalence survey, between December 2012 and December 2014. Were eligible for inclusion, women aged between 18 and 65 years, sexually active, who sought medical attention at their primary health care centre or clinic, the day of the survey, and who gave written consent. Women having an abnormal genital bleeding or a visible lesion in the cervix were not included. A standardized questionnaire on socio-demographic and behavioral factors was orally administered. A liquid-based Pap smear sample was obtained from included women using a cervical brush. Only women with betaglobin positive PCR-test were further analyzed for HPV detection and typing. Data were entered with EpiData 3.0 and analyzed with SPSS 20.0. Multiple logistic regression modeling was used for the analysis of independent factors associated to HPV infection.

Results: A total of 1518 women were included in the survey, among them 1229 were betaglobin positive. The mean age of included women was 40.4±0.9 years. The national prevalence of HPV infection was 7.8% (95% CI [3.4- 14.4%]). In multivariate analysis, factors associated to HPV infection were having multiple sexual partners (ORa=5.2; 95% CI [2.2-11.6]), smoking (ORa=4.7; 95% CI [2.2-9.8]) and medical history of sexually transmitted infection (ORa=1.9; 95% CI [1.2-3.1]). The most common were HPV6 (25.4%; 95%CI [16.9-36.9%]) and HPV16 (14.1%; 95%CI [16.9-36.9%]).

Conclusions: Our study is the first national prevalence survey of HPV infection in Tunisia providing important insight into associated factors and main circulating genotypes. However, cost-effectiveness analysis of adding HPV vaccine alongside with screening is necessary.

Status: Completed. Role: in charge of data collection, analysis and interpretation and report and manuscript writing. Outputs: Oral presentation at the 3rd Annual MediPIET Scientific Conference, Brussels, November 2017.

Cost-effectiveness analysis of adding the bivalent Human Papillomavirus vaccine to cervical cancer screening program in Tunisia, 2017

Background: Invasive cervical cancer (ICC) is the second gynecological cancer in Tunisia after breast cancer with an estimated annual incidence of 4.1 per 100 000 women. Coverage of screening of precancerous lesions among women aged between 35 and 59 years is currently of 14%. This study compares two strategies, namely «cytological cervical screening every 5-years» and «bivalent HPV vaccination with cervical screening every 5-yearsfor», taking into consideration disease incidence, costs of screening and vaccination, and further economic implications.

Methods: For both strategies, we simulated 30 years follow-up of hypothetical cohort of 1 million girls 11 years aged, based on of the natural history of HPV infection. Computation of yearly medical care costs was based on data from medical files of patients diagnosed with cervical cancer in 2004 at the National Institute of Cancer, Tunis taking into consideration only direct medical costs. Computation of yearly incidence rates of ICC by age groups was based on data from North-Tunis register of cancer, 2007-2009. A vaccine coverage rate of 80% was considered and was assumed to provide a lifelong protection. The evaluation was based on the Incremental cost-effectiveness ratios (ICER) which was compared to commonly agreed standard thresholds in literature.

Results: If screening coverage increased to 60%, the strategy including introduction of vaccination and screening would prevent an estimated total of 1992 ICC, which represents 80.4% of total number of expected cases avoided. The cost of each prevented case would be 146 205 Tunisian Dinars (TND) (= 49 886.5 EUR). The strategy based on screening only would prevent an estimated total of 936 ICC (37.8% of total expected number) with a cost per avoided case of 45,542 TND (=15 536.17 EUR). The ICER is 225,437 TND (=76 907.9 EUR).

Conclusions: Provided cytological cervical screening coverage is increased to 60%, the introduction of vaccination along with screening would result in a 42.6% reduction of ICC annual incidence. With that 60% coverage, the strategy of cytological cervical screening appears to be the most cost-efficient with the lowest annual mean cost of each ICC case prevented.

Role: Elaboration of the protocol and model; data analysis and interpretation.

Outputs: Abstract and oral communication accepted at the first congress of National observatory of new and emerging diseases, November 2017. Paper under preparation and expected date of submission mid-December 2017.

International Assignments

Surveillance network of health-care associated infections. InVS& CCLIN, Paris, France – November 2015

On any given day, 5.7% of patients in European hospitals have at least one health-care associated infection (HAI), a potentially preventable adverse event with considerable medical and economic consequences. In Tunisia, such figure has been estimated as 6.6% in a point-prevalence study conducted in 2012.

In collaboration with the national French Institut de Veille Sanitaire (Dr Brigitte Helynck), a two-week mission 1-11 November 2015 was conducted to understand how to set up a surveillance network of health-care associated infections was conducted with visits to the involved health care settings in Paris, France. The schedule was as follows:

- 2nd& 3rd November: Welcome to the Unit healthcare associated infections and antibiotic resistance, Infectious Diseases Department, Institute de Veille Sanitaire (InVS)
- 4 - 6th November: Sharing of their experience and lessons learnt at the Coordination Center for the Fight against nosocomial infections in the northern inter- region of France (CCLIN Paris Nord).
- 9-10th November: Visit and meeting with the Infection and Prevention Control Teams of several hospitals in Paris.

As a result of this mission, national infection control guidelines were reviewed with the Healthcare-associated Infections Committee and specific guidance was provided for a set of procedures to establish a healthcare associated surveillance network in Tunisia.

Control of multidrug-resistant micro-organisms (MDRO) in health care settings, Stockholm, Sweden – October 2017

Following the first IA on HAIs surveillance and to further specialize in the topic, a one-week mission to participate in an ECDC practical training on *Control of healthcare-associated infections due to multidrug-resistant organisms (MDROs)* took place in October 2017. The main objective of the course was to strengthen capacity in EU Member States for control of healthcare-associated infections due to multidrug-resistant organisms (MDROs) in acute health care settings and to promote the broadest possible implementation of appropriate methods. A second objective was to achieve team building between colleagues with similar responsibilities in control of nosocomial spread of MDROs and to share

training approaches, knowledge and best practices. The schedule was the following:

5th September:

- The central role of the laboratory in surveillance and outbreak management,
- Evidence based interventions for prevention and control of MRO in healthcare settings,
- Antibiotic stewardship: Policies, formularies and guidelines.

6th September:

- Antibiotic stewardship: Measures for improvement,
- Understanding drivers and modifiers of MDROs in health care settings,
- Antimicrobial resistance surveillance,
- Antimicrobial prescribing surveillance.

7th September:

- Application of interventions to control MDROs in health care settings,
- Application of interventions to control antibiotic prescribing in health care settings,
- Application of interventions for outbreak control and responses to reduce MDROs in health care settings.

Following the mission, a discussion was initiated and it has been agreed to develop a protocol to set up an antimicrobial resistance surveillance network in Tunisia, involving the same institutions as in the HAI network.

Scientific communication

Results were shared in the following conferences (in chronological order):

- Two poster presentations at the International Symposium of cardiovascular disease prevention and non-communicable diseases risk factors, Tunisia, October 2014.
- Rejaibi Salsabil, Letaief Hejer, Bahrini Asma, Ben Alaya Bouafif Nissaf. *National point-prevalence of healthcare-associated infections in Tunisia, Study NOSOTUN 2012*. Oral communication. First MediPIET Annual Scientific Conference, December 2015, FYROM.
- Rejaibi Salsabil, Letaief Hejer, Bahrini Asma, Ben alaya Bouafif Nissaf. *Prevalence of antimicrobial use in Tunisian Care Hospitals, 2012*. First MediPIET Annual Scientific Conference, December 2015, FYROM.
- One oral communication at the International Congress of Nutrition April 22, 2016, Tunisia.
- Rejaibi Salsabil, Ben alaya Bouafif Nissaf. "Current Challenges of Biological Risks and Health Security". Poster communication at the Institut Pasteur Tunis and Robert Koch Institute Partnership Symposium, September 22-23, 2016.
- Two poster presentations at the International Symposium of practical cardiology, Tunisia, June 2017.
- Rejaibi Salsabil, Letaief Hejer, Ben alaya Bouafif Nissaf. *National point prevalence survey of Human Papillomavirus infections in Tunisia, 2012 - 2014: Genotypes and risk factors*. Oral communication at the 3rd MediPIET Annual Scientific Conferences Brussels, 2017.
- Rejaibi Salsabil, Dhaouadi S, Osman M, Ben Ahmed I, Mrabet A, Ben Alaya Bouafif N, Ben Romdhane H. *Time to manage acute coronary syndrome: Associated epidemiological factors*. Poster at the 3rd MediPIET Annual Scientific Conferences Brussels, 2017.

In addition, the following papers are published or under preparation:

- Ardhaoui M, Ennaifer E, Letaief H, Salsabil R, Lassili T, Chahed K, Bougatef S, Bahrini A, El Fehri E, Ouerhani K, Paez Jimenez A, Guizani I, Boubaker MS, Ben Alaya NB. *Prevalence, Genotype Distribution and Risk Factors for Cervical Human Papillomavirus Infection in the Grand Tunis Region, Tunisia*. PLoS One. 2016 Jun 14;11(6):e0157432.
- Under preparation: *Cost-effectiveness analysis of adding the bivalent Human Papillomavirus vaccine to cervical cancer screening program in Tunisia, 2017*.

Teaching experience

During the fellowship, acted as facilitator in the following activities:

- "News on emerging diseases" presented as part of the Continuing Education Day on the theme "Hospital hygiene and epidemics" December 11, 2014 in Zaghouan region.
- Teaching session for preventive medicine interns entitled "Epidemiology and prevention of cardiovascular disease in the military health directorate February 15, 2016.
- Facilitator in the hygiene day training held at La Rabta university hospital in February 19, 2016.
- "Survival analysis with SPSS" (one session for anesthetists), July 2015, ONMNE.
- "Endnote software and managing bibliographic references", April 2016, Medical School of Tunis.
- "Introduction to Data Analysis on SPSS", 6 -10 June 2016, ONMNE, Tunisia.

Other trainings

The following diplomas and trainings were attended:

- Training on Health economics – Institute of public health – Tunisia 2017,
- Training on Qualitative research – Institute of public health – Tunisia 2016,
- Diploma in public health, Faculty of medicine of Tunis, 2016 (completed),
- Diploma in Vaccinology, Faculty of medicine of Sfax, Tunisia, 2016 (completed),
- Diploma in Biostatistics, epidemiology and clinical research-Faculty of medicine of Tunis, August 2015 (completed),
- Training Workshop on scientific communication and writing theses held in the Faculty of Medicine of Tunis 27 - 28 November 2015,
- Training on time series analysis (TSA) using Stata software held in the National Observatory of new and emerging diseases 15 to 19 June 2015.

Additional activities

Implementation and main results of Epidemic Telephone Conference (EpiTec), Tunisia, 2016

Background: Indicator based Surveillance is no longer sufficient to respond adequately to public health challenges. Therefore, Event Based Surveillance (EBS) becomes necessary to respond to urgent threats to public health security. In Tunisia, Epidemic telephonic-conferences (EpiTec), which is an innovative surveillance method providing a scientific and structured platform for regular exchange about current events related to infectious disease, was implemented in the ONMNE since March 2016 in collaboration with Robert Koch Institute (RKI).

Aim: To share the Tunisian experience with the implementation of EpiTec, to describe the main events reported and to assess challenges for sustainability.

Methods: Workshops from 2015 to 2016 involving surveillance experts from the Strategic Health Operations Center (SHOCROOM), ONMNE, Primary Healthcare Direction (DSSB), Pasteur Institute of Tunis (IPT) and focal points in different governorates jointly developed standardized procedures for the implementation of EpiTec. In April 2016, a simulation exercise was realized in order to refine the procedures and to share a real operational experience for EpiTec. Tunisian Telecom Conf Call service was used to ensure telephonic communications.

Findings: The first conference was held on March 13, 2016. Technically, the quality of the conference was excellent and allows an unlimited number of participants. The median number of participants per conference was 10 IQR (7-11.25). The highest participation rate was in Mannouba governorate (86.4%) followed by Ben Arous (77.3%). The lowest participation rate was in both Zaghouan and Sfax governorates. Twenty two regions participated at least once and the average number of reported events per conference was 3.5 ± 0.45 (min 1, max 7). The main reported events were: SARI/ILI, human rabies, tuberculosis and brucellosis.

Discussion and conclusion: Since EpiTec is a new surveillance tool in Tunisia, time and experience are required to improve it. Therefore, a training curriculum targeted at local, regional and national-level was developed to reinforce its implementation.

Role: participation in the different workshops (May 2015) and in the simulation exercise (12-14 April 2016). Outputs: Abstract and poster accepted at the IPT & RKI Partnership Symposium: "Current Challenges of Biological Risks and Health Security" September 22-23, 2016.

Time to manage acute coronary syndrome: associated epidemiological factors in Tunisia, 2010

Background: The delay in the management of acute coronary syndrome (ACS) is admitted to be a prognostic factor attributable to higher mortality and occurrence of post-revascularization complications. The aim of this study was to identify the epidemiological factors influencing the "latency-patient" delay, which is the delay between the onset of symptoms and the first medical contact.

Methods: Prospective, multicentric study conducted between 1st July 2009 and 30 June 2010 in cardiology departments in all teaching hospitals of Tunis. Our study population was a subgroup of the study "TEPS-ACS", carried out by the epidemiology department of cardiovascular diseases of the Faculty of Medicine of Tunis. Were included patients admitted for (ACS) with a diagnosis made within the first 24 hours of onset of symptoms. Patients with (ACS) who were initially treated in a primary health facility were not included in our study. Data on socio-demographic characteristics and medical history were collected using a questionnaire administered by external investigators to the hospital departments. Data were analyzed with SPSS software version 11.5 with a significance threshold of 5%.

Results: A total of 445 patients were included in our study. The median age of our study population was with 60 ± 1.2 years with a sex ratio M/F equal to 3.7. The mean "latency-patient" delay was 4 hours and 15 minutes. In univariate analysis, age, gender, marital status, history of myocardial infarction, smoking, diabetes, and dyslipidemia were significant factors influencing the latency-patient delay. In multivariate analysis, the only independent factor associated with the prolongation of this delay was the female gender with an adjusted Odds ratio equal to 1.87; $p = 0.002$.

Conclusion: To decrease mortality attributable to (ACS) and to guarantee better results after revascularization, increasing awareness in the general population regarding the onset signs of myocardial infarction is necessary.

Status: completed. Outputs: Poster accepted at the 3rd Annual MediPIET Scientific Conference, Brussels November 2017.

Supervisor's and Scientific Coordinator's conclusion

Salsabil Rejaibi has taken full advantage of the MediPIET fellowship to become an outstanding epidemiologist. She has been involved and led herself a large variety of public health projects, even beyond the infectious disease domain. As a result of her work and without being exhaustive, surveillance of healthcare-associated infections and antimicrobial resistance has been strengthened in Tunisia, the epidemiology of HPV has been characterised and a study on vaccine cost-effectiveness conducted to allow for its informed introduction and guidelines for safe blood donation were developed. Very concerned with scientific rigor, detailed-oriented, efficient and proactive, Salsabil is also a quick-learner.

MediPIET Scientific Coordination concludes Salsabil Rejaibi has succeeded in performing all her assignments to the highest standard and with a professional attitude. She has also demonstrated very good interpersonal and soft skills, being at ease working in multidisciplinary teams and an excellent team player. It has been our pleasure to work with her.

References

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