



Disponible en ligne sur

ScienceDirect
www.sciencedirect.com

Elsevier Masson France

EM|consulte
www.em-consulte.com

Médecine et maladies infectieuses xxx (2017) xxx–xxx

**Médecine et
maladies infectieuses**

Original article

Characteristics and outcome of multidrug-resistant tuberculosis in a low-incidence area[☆]

Caractéristiques et devenir des patients atteints de tuberculose multirésistante dans une zone de faible endémie

B.J. Gaborit^{a,*}, M. Revest^b, F. Roblot^c, Z. Maakaroun-Vermesse^d, P. Bemer^e, T. Guimard^f,
F. Raffi^a, C. Bourigault^a, D. Boutoille^a, GERICCO MDR-TB study group

^a Inserm, CIC 1413, service de maladies infectieuses et tropicales, centre hospitalo-universitaire de Nantes, 1, place Alexis-Ricordeau, 44000 Nantes, France

^b CIC-Inserm 1414, service de maladies infectieuses et tropicales, centre hospitalo-universitaire de Rennes, université de Rennes 1, 35000 Rennes, France

^c Service de maladies infectieuses et tropicales, centre hospitalo-universitaire de Poitiers, 66021 Poitiers, France

^d Service de maladies infectieuses et tropicales, centre hospitalo-universitaire de Tours, 37000 Tours, France

^e Service de microbiologie, centre hospitalo-universitaire de Nantes, 44000 Nantes, France

^f Service de maladies infectieuses et tropicales, centre hospitalier départemental de la Vendée, 85000 Vendée, France

Received 18 October 2017; accepted 27 April 2018

Abstract

Objectives. – To characterize multidrug-resistant tuberculosis (MDR-TB) patients treated in a low endemic area in France and to determine risk factors for resistance. We also analyzed the efficacy and tolerability of tuberculosis (TB) treatment.

Methods. – Between 2002–2013, all MDR-TB patients diagnosed in western France (hospitals belonging to the GERICCO group) were retrospectively included, with a follow-up period running until 2016. A case-control study (1:2), matched according to age, sex, and year of diagnosis, was performed to assess socio-demographic and clinical data, treatment strategies, and outcomes for the MDR-TB patients and controls treated for drug-susceptible tuberculosis during the same period.

Results. – Of 134 TB patients, 44 were MDR-TB and 90 were drug-susceptible TB. Of the 44 MDR-TB patients (35 MDR and nine extensively drug-resistant [XDR]), 33 (75%) were males; the median age was 33 years; and 27 (61%) were born in Eastern Europe. Prior treatment failure was more frequently reported for XDR-TB (8/9) in Georgian patients. In multivariate analysis, risk contacts and prior TB history were associated with MDR-TB. Treatment failure was associated with MDR/XDR-TB and military TB.

Conclusion. – In western France, MDR-TB more frequently occurred in recent migrants from high-risk countries with a previous history of at-risk contact with other MDR-TB patients or previous TB treatment failure.

© 2018 Elsevier Masson SAS. All rights reserved.

Keywords: Epidemiology; MDR-tuberculosis; Risk factors

Résumé

Objectifs. – Caractériser les facteurs de risque de diagnostic de tuberculose multirésistante (MDR-TB) dans une zone de faible endémicité et analyser leur prise en charge.

Méthodes. – Entre 2002 et 2013, tous les patients atteints d'une MDR-TB diagnostiqués dans l'Ouest de la France (groupe GERICCO) ont été inclus dans une analyse cas-témoins (1/2) rétrospective avec appariement selon le sexe, l'âge et l'année du diagnostic et comparés à des patients porteurs de tuberculose sensible (TB sensible) avec un suivi jusqu'en 2016.

[☆] The article was presented at the 16th JINI, Nancy, 2015.

* Corresponding author.

E-mail address: Benjamin.gaborit@chu-nantes.fr (B.J. Gaborit).

<https://doi.org/10.1016/j.medmal.2018.04.400>

0399-077X/© 2018 Elsevier Masson SAS. All rights reserved.

Résultats. – Parmi les 134 patients porteurs d'une tuberculose, 44 étaient des MDR-TB et 90 des TB sensibles. Parmi les 44 patients avec MDR-TB (35 MDR et 9 ultra-résistants [XDR]), 33 (75 %) étaient des hommes ; l'âge médian était de 33 ans ; 27 (61 %) étaient nés en Europe de l'Est. Un échec thérapeutique antérieur a été plus fréquemment rapporté pour les tuberculoses XDR (8/9) des patients d'origine géorgienne. En analyse multivariée, le contage avec des patients à risque de MDR-TB et les antécédents de tuberculose étaient associés aux MDR-TB. L'échec du traitement était associé à une tuberculose multirésistante et une tuberculose miliaire.

Conclusion. – Dans une zone de faible endémicité, les tuberculoses MDR sont plus fréquemment diagnostiquées chez des patients en provenance de pays à haut risque, ayant un contage récent ou un échec de traitement antituberculeux.

© 2018 Elsevier Masson SAS. Tous droits réservés.

Mots clés : Épidémiologie ; Facteurs de risque ; Tuberculose MDR

1. Introduction

In 2016 [1] only a quarter of the 480,000 worldwide cases of multidrug-resistant tuberculosis (MDR-TB) estimated by the World Health Organization (WHO), were detected and reported. Nearly 4% of patients with a first diagnosis of tuberculosis (TB) and 21% of those with a history of previous treatment have MDR-TB. With an estimated 250,000 deaths from MDR-TB in 2015, early detection of MDR-TB cases remains a major challenge worldwide. As evidenced by cases of tuberculosis in Neolithic humans [2–4], *Mycobacterium tuberculosis* (*M. tuberculosis*) seems to have always co-evolved with mankind in a continuous adaptation process [5], and remains today the second cause of mortality from infectious diseases worldwide, after HIV [6]. Due to the complexity and the toxicity of their treatment [7,8], as well as the risk of further resistance acquisition, MDR (multidrug-resistant) and XDR (extensively drug-resistant) strains must be identified early. MDR-TB is defined by a resistance to at least isoniazid and rifampicin, and XDR-TB is defined by an additional resistance to fluoroquinolones and an injectable drug [6]. In France, although the global incidence of TB has decreased since 1998, 40 to 80 MDR-TB cases per year have been reported over the past 20 years (1.4% of all TB cases). Although the incidence of TB has decreased in France, we have been observing a worrying rise in MDR and XDR-TB in the western area of France [9]. We therefore conducted a study to analyze the epidemiological, socio-demographic, clinical characteristics, and outcome of MDR-TB patients in Western France. The objective was to determine risk factors for MDR-TB through a case-control study with drug-susceptible TB patients.

2. Methods

2.1. Study population and design

All MDR-TB adults diagnosed with a culture-confirmed MDR-TB (MDR or XDR) and hospitalized in four teaching hospitals and five local hospitals belonging to the research group GERICCO, were retrospectively included over an 11-year period (2002–2013). Patients were followed until 2016. We compared MDR-TB population with drug-susceptible TB patients diagnosed in the teaching hospital of Nantes, matched according

to age, sex, and year of diagnosis with a 1:2 ratio. Two pediatric patients, without bacteriological documentation but with several MDR-TB cases in their family were also included.

2.2. Data collection

Data was extracted from a specific questionnaire and from a systematic review of medical charts. We collected demographic and clinical characteristics, bacteriological results (susceptibility report from the Reference National Center, the Institut Pasteur, Paris, France), as well as strategies and tolerability of treatments prescribed to drug-susceptible and MDR-TB populations. The risk areas of MDR-TB were classified into three areas according to the incidence of new TB cases with MDR/RR (RR: rifampicin-resistant)-TB in the population: the high-risk area (> 12–17.9/100,000), the low-risk area (6–12/100,000), and the no-risk area (< 6/100,000). We also collected history of previous TB episodes and treatments. Treatment failure was defined by death or persistence of positive TB culture at treatment completion. Success was defined by the absence of clinical and bacterial relapse at treatment completion. Patients lost-to-follow-up were notified.

Primary isolation and culture were performed in local microbiology laboratories, following standardized procedures (phenotypic criteria). Thirty-four MDR *M. tuberculosis* strains were sent to the National Reference Centre who completed the antimicrobial susceptibility testing through genotypic and phenotypic analyses.

2.3. Statistical analysis

Patient characteristics were described using mean and standard deviation (SD) for continuous variables, and proportions for qualitative variables. Continuous variables were analyzed using Kruskal–Wallis test, qualitative variables using the Chi² test or Fischer's exact test. Data was explored using a univariate followed by a multivariate analysis. A stepwise logistic regression was used including variables with $P < 0.25$ in the univariate analysis. Statistical significance was achieved when $P < 0.05$ and confidence intervals (CIs) were calculated at the 95% level. All statistical analyses were done using STATA 12.1 (Stata corporation, College Station, Texas, USA).

Download English Version:

<https://daneshyari.com/en/article/11022161>

Download Persian Version:

<https://daneshyari.com/article/11022161>

[Daneshyari.com](https://daneshyari.com)