



Molecular typing and antibiotic sensitivity of *Neisseria meningitidis* strains isolates in Algeria

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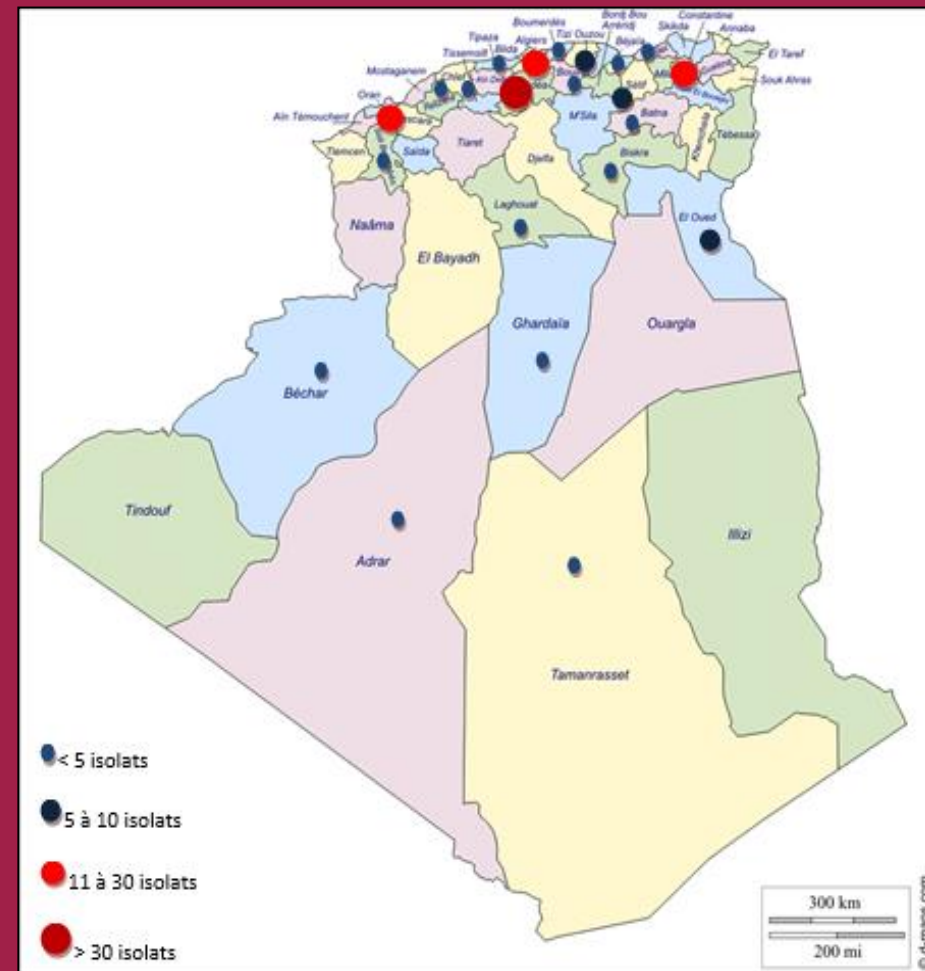
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Background:

Multi Locus Sequence Typing and antibiotics sensitivity of *Neisseria meningitidis* isolated in Algeria.

Material and method:

- 201 strains of *N.meningitidis* collected from 1992 to 2013. Identification confirmed by PCR, and M.I.C. determination (E test): penicillin, cefotaxim, chloramphenicol, rifampicin, azithromycin and ciprofloxacin.
- MLST performed (www.pubmlst.org/neisseria - Jolley and Maiden 2010, BMC bioinformatics, 11: 595). The sequencing of the *penA* locus is performed for penicillin intermediate strains.

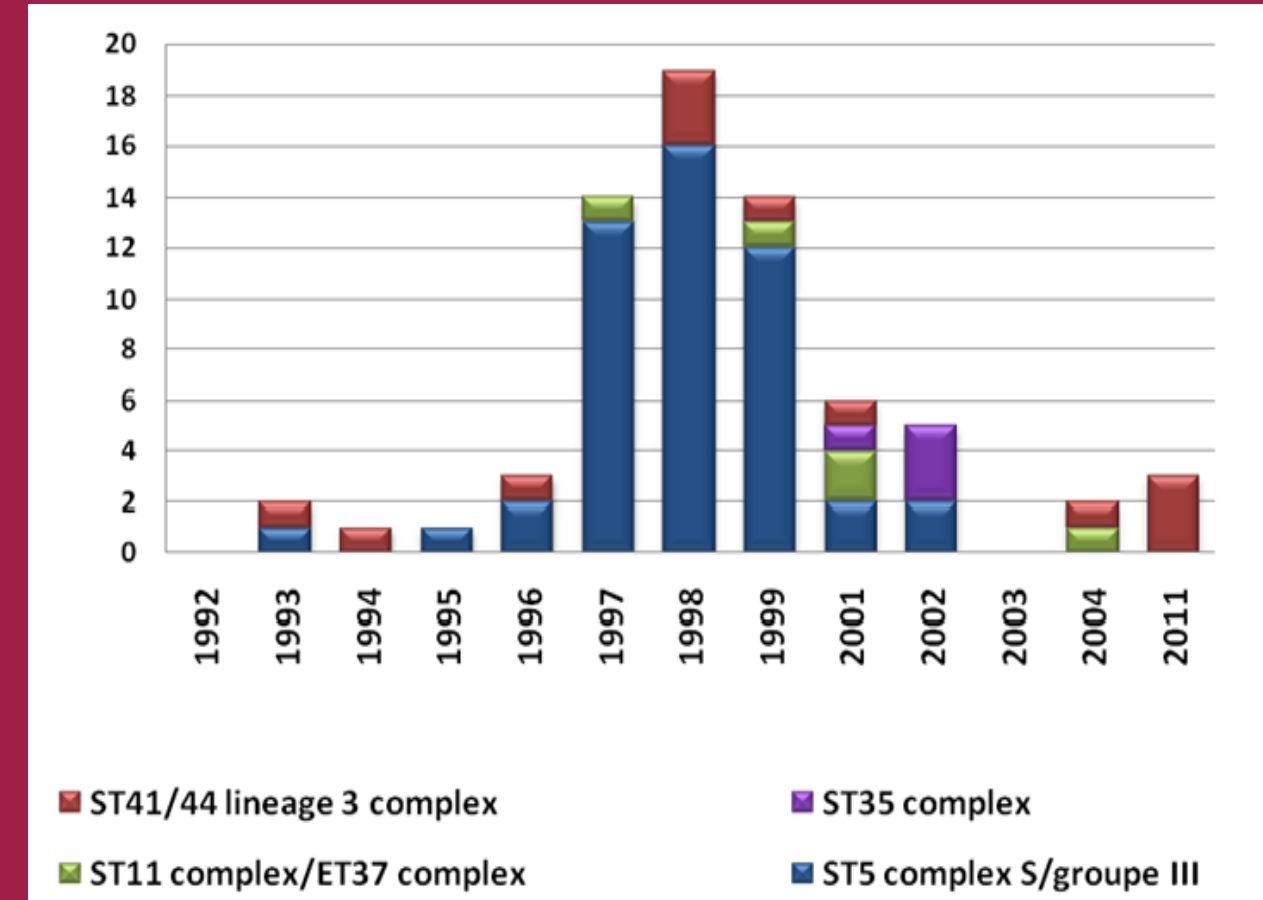
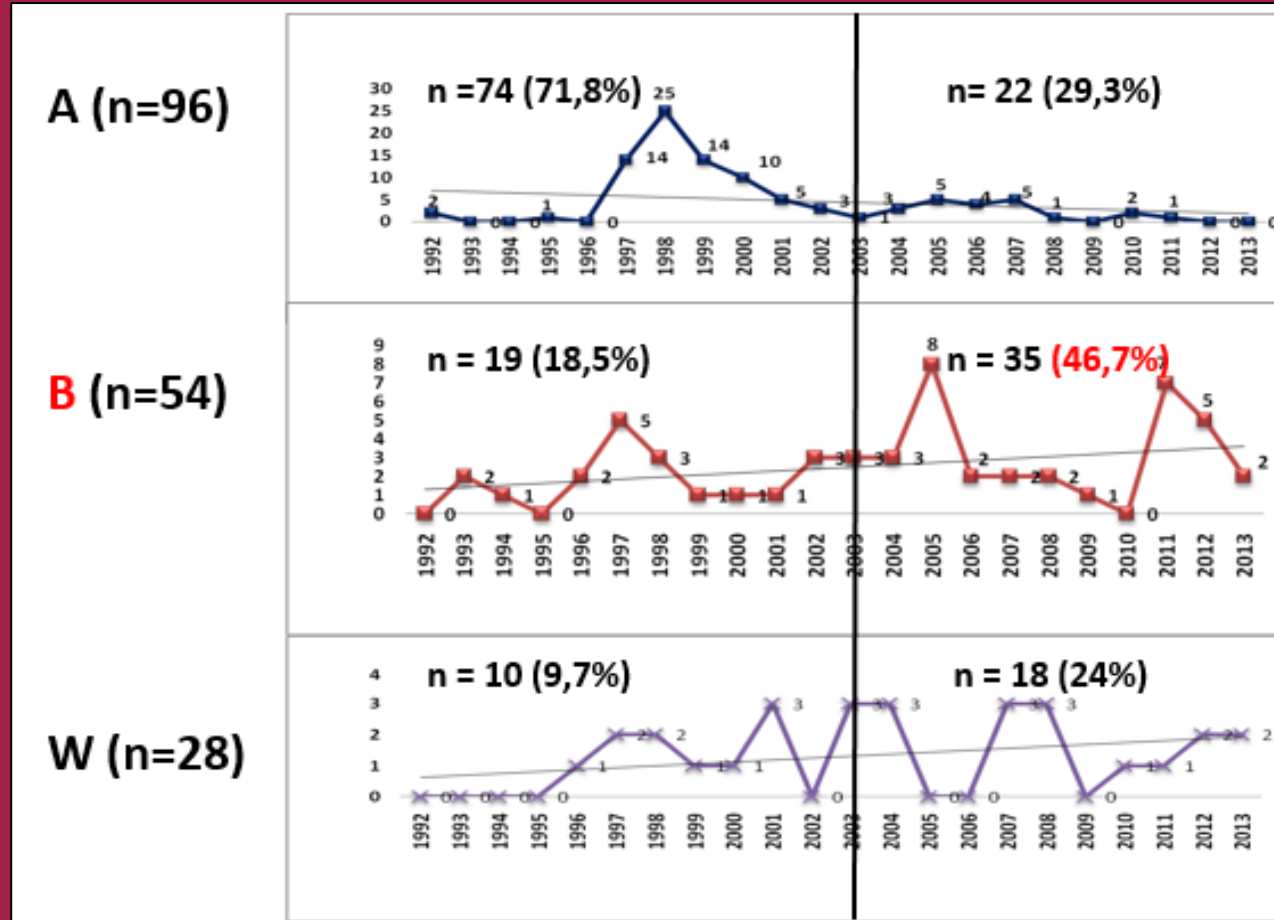


Results:

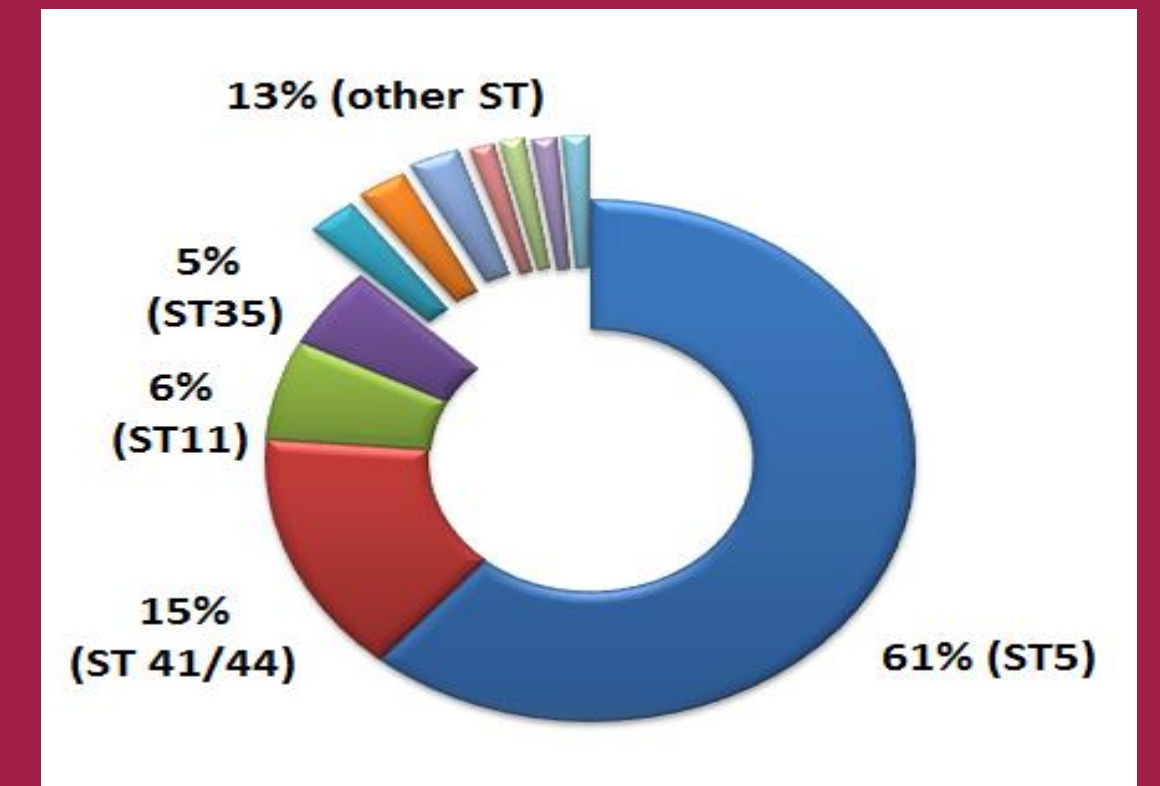
- Strains are collected from districts mainly in the north. The Medea region is the most represented because of the epidemic observed in this district in 1998. 95% isolates from meningitis cases, and 5% from meningococemia.
- Serogroups distribution show A (48%), B (27%), W (14%), C (88%) and Y (3%). **Serogroup B is increased (46,7% between 2003 et 2013).**
- The strains with reduced susceptibility to penicillin was 10.4% (21/201). **About 40% of these strains (Pen I) was isolates between 2009 to 2013.** No resistance was found for ciprofloxacin, chloramphenicol, rifampicin, spiramycin and azithromycin.
- Sequencing *penA* found many alleles: 367 (new), 4, 12, 1, 3, 9, 10, 43, 71, 80, 117, 300, 418.
- MLST profiles found several clonal complex: ST5 61.25% (n = 49), ST41 / 44 15% (n = 12), ST11 6.25% (n = 5), ST35 5% (n = 4), ST32 2,5% (n=2), ST22 2,5% (n=2), ST23 2,5% (n=2), ST1 1,25% (n=1), ST4 1,25% (n=1), ST167 1,25% (n=1) and ST174 1,25% (n=1).

Conclusion:

- This work allowed us to implant the technique of genotyping by MLST in our laboratory.
- All meningococcal epidemics in Algeria (the last one in 1998) were due to serogroup A.
- Since 2013 the isolate strains are predominantly serogroup B and W. The clonal diversity of meningococcus and the epidemiological transition in our country, justify increased microbiological monitoring of *Neisseria meningitidis* strains.
- The revision of the national consensus of management of bacterial meningitis is essential.



Antibiotics	Intermediate	MIC50/ MIC90	Break-points
Penicillin	21/201 (10,4%)	0,032/0,094	0,125 – 2
Amoxicillin	18/201 (9%)	0,047/0,125	0,25 – 2
Ciprofloxacin	0/201 (0%)	0,003/0,004	≥ 0,25
Chloramphenicol	0/201 (0%)	0,38/0,75	2 – 4
Rifampicin	0/201 (0%)	0,047/0,125	≥ 0,25



References: REM Vol XXII, annuel, 2012; Tali-Maamar H. et Rahal K. (2003 *Med. Mal. Inf.* 33:640-643; Roderick M., Finn A. (2014) *Journal of Infection* 68:S76-S82, Pizza M., DeTora L. and Wassil J. (2012) *Clin. Pract.* 9(1):101-117, A., Tufenkeji H., Khalil M., Memish Z (2012) ; *Journal of epidemiology and global health* 2:23-30

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