CHANGE IN BACTERIAL NASOPHARYNGEAL CARRIAGE IN CHILDREN WITH ACUTE OTITIS MEDIA FOLLOWING PCV13 IMPLEMENTATION: A TIME SERIES ANALYSIS OF A 10 YEARS MULTICENTER PROSPECTIVE SURVEY

Naim Ouldali, Stéphane Bonacorsi, Corinne Levy, Stéphane Bechet, François Vie Le Sage, Olivier Romain, Elisa Seror, Emmanuelle Varon, Robert Cohen

ACTIV, Association Clinique et Thérapeutique Infantile du Val-de-Marne, GPI, Groupe de Pathologie Infectieuse Pédiatrique, Unité d'épidémiologie clinique, Assistance Publique-Hôpitaux de Paris, Hôpital Robert Debré, ECEVE INSERM UMR 1123, Paris, hôpital Necker Enfants Malades, Université Paris Descartes, AFPA, Association Française de Pédiatrie Ambulatoire, Université Paris Est, IMRB-GRC GEMINI, Créteil, Clinical Research Center (CRC), Centre Hospitalier Intercommunal de Créteil, National Reference Center for Pneumococci, Assistance Publique-Hôpitaux de Paris, Hôpital Européen Georges-Pompidou, Paris, Université Paris Diderot, Sorbonne Paris Cité, Service de Microbiologie, Assistance Publique-Hôpitaux de Paris, Hôpital Robert-Debré, Unité Court Séjour, Petits nourrissons, Service de Néonatalogie, Centre Hospitalier Intercommunal de Créteil, France

BACKGROUND AND OBJECTIVES

Because tympanocentesis is not performed routinely in France for first line acute otitis media (AOM) and to follow the bacterial changes induced by PCV13, we set-up two epidemiological studies: the first follows the otopathogens from nasopharyngeal flora of children with AOM, and the second investigates the otopathogens recovered from children with AOM complicated by spontaneous otorrhea. We present the results of this first study.

METHOD

We conducted a quasi-experimental, population-based interrupted time series analysis based on a multicenter prospective cohort over 10 years in France, recruiting 138 pediatricians who obtained nasopharyngeal swabs in <2 years children with acute otitis media (AOM), from November 2006 to March 2017. Change in bacterial nasopharyngeal carriage rate over time was analyzed using the segmented regression model with autoregressive error, adjusted on day care center attendance and antibiotic consumption trend.

RESULTS

During the study period, 9,957 children with AOM were enrolled. *Streptococcus pneumoniae* (Sp), *Haemophilus influenzae* (Hi) and *Moraxella catarrhalis* (Mc) were identified in 5,566, 5,116 and 5,539 swabs respectively (56%, 51% and 56%). PCV13 implementation was followed by a significant decreasing trend of Sp carriage rate (-0.1% per month, $p=0.005$). Hi carriage rate non significantly increased after PCV13 (+0.5% per month, $p=0.08$), and became the most frequent bacteria in 2017. Mc significantly decreased after PCV13 (-0.4% per month, $p=0.04$).

CONCLUSION

Probably due to the change of AOM clinical profiles, 6 years after PCV13 introduction, we observed a significant shift in bacterial species from nasopharyngeal flora.

ACKNOWLEDGMENTS

We thank all pediatricians who participated in the study: C Abt-Nord, M-J Aim-Mille, D Allain, M Amzallag, P André, I Aubier, P Bakhache, J Baron, B Baszanger, C Batard, G Beley, M Benani, C Bensoussan-Ambacher, E Billard, L Billet, J-P Blanc, M-J Bodin, E Boez, B Bohe, J Bouglé, F Bouillot, B Broussin, J-L Cabos, P Camier, F Ceccato, A Chevé, D Clavel, C Claverie, R Cohen, L Coicadan, F Corrad, L Cret, G d'Acremon, N D'Ovidio-Panis, B de Brito, F De Grenier, P Deberdt, I Defives, A Delatour, J-F Delobbe, V Derkx, V Desvignes, M Dogneton, I Donikian-Pujol, C Douer-Fernando, M Dubosc, J Ducellier, C Dumont, A Elbez, J Elbhar, N Elkhouri, C Ferte-Devin, J-M Fiorini, D Gareil, J-L Gasnier, A Gasser, B Gaudin, N Gelbert-Baudino, P Gembara, C Georgeot, M Gerardin, M Giorno, M Goldrey, R Gorge, J Gosselin, C Guiheneuf, J-L Guillon, J-F Hassan, A Hayat, H Hollenberg, P Huguet, P Hugot, M Hunin, A Kalindjian, K Kassmann, Z Klink, M Koskas, C Lastman-Lahmi, H Le Scornet, M-C Lemarchand, J-C Lévêque, J Levy, M Levy, D Livon, N Maamri-Belaroussi, C Magendie, I Martins, M-O Mercier-Oger, C Messica, F Meunier, A-S Michot, J Mictot, P Migault, I Nave, M Navel, J-F Nicolas, M-O Oger, J Ohayon, J-C Oilleau, A Pappo, F Paratte, J Peguet, C Perrin, C Petit, B Pinçant, O Pinard, A Piolet, J-F Pujol, M-T Pujol, N Ramos, S Ravilly, Y Regnard, M Robert, O Romain, S Romano, M-C Rondeau, B Saade, C Salinier-Rolland, C Schlemmer, E Seror, G Sivel, D Somerville, N Temam-Basse, J-M Thiron, F Thollot, J Toledanno, R Toutou, C Turberg-Romain, J Vaugois, F Vie Le Sage, J-L Vuillemin, A Werner, R Wisnewsky, A Wollner, C Wollner, C Ythier.

We thank M Boucherat, M Fernandes, I Ramay, D Menguy, C Prieur, A Prieur and Elsa Sobral for technical assistance.

Impact of PCV13 on *S. pneumoniae* (Sp) and *H. influenzae* (Hi) nasopharyngeal carriage in < 2 years children with AOM

The study was funded by Pfizer.