

Towards a Belgian consensus for prevention of perinatal group B streptococcal disease

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Background & objectives: In Belgium, as in many other countries, group B *Streptococcus* (GBS) is still the leading cause of sepsis and meningitis in neonates. In 2001, though no Belgian guidelines for their prevention were available, in some hospitals, obstetrical programmes included a GBS prevention policy. With an aim to reach a Belgian consensus for the prevention of perinatal group B streptococcal disease, a national consensus meeting was organized in 2001. We report here our experience and findings of this meeting.

Methods: In November 2001, obstetricians, neonatologists, microbiologists and infectious diseases specialists were invited to participate in a GBS symposium. International and Belgian speakers presented epidemiological aspects, argued comparative cost-effectiveness of different approaches for prevention and debated technical and practical problems. Management of neonates with risk factors for GBS disease and progress in GBS vaccines were also included in the programme. Further results about Belgian obstetricians' practice and compliance to a policy for prevention of neonatal GBS diseases, as answered in two mail surveys, were commented and discussed. In an interactive session at the end, each participant was asked to vote on the key points related to the different steps of the ideal prevention strategy to recommend.

Results: For the main questions, 94 per cent of participants choose a screening-based approach and 94 per cent shifted from the current use of ampicillin to penicillin as first choice for antimicrobial prophylaxis. Further, 79 per cent voted for an approach with integrated neonatal prophylaxis for selected neonates at high risk for GBS disease and 47 per cent voted for a strategy based on an intrapartum rapid screening-based approach.

Interpretation & conclusion: The state of the question by different speakers, the data from Belgian epidemiology, and the debate about cost-effectiveness of different approaches led to a massive vote in favour of the universal screening-based approach. Based on these results, a working group has been appointed by the Ministry of Health to draft and edit Belgian recommendations for the prevention of perinatal GBS disease.

Key words Group B *Streptococci* - prevention - neonatal infection

In Belgium, as in many industrialized countries, since the 1980s, group B streptococcus (GBS) has been and remains the most important pathogen causing neonatal invasive infections¹⁻⁴. From 1985 to 1998, GBS caused 35 per cent of neonatal (0-28 days) sepsis and meningitis, next followed by *Escherichia coli* (18 %) and others⁴.

More recently a short decline in GBS occurrence has been reported (Public Health Institute and P. Melin, unpublished data).

Our interest in GBS research has expanded since the last two decades and this period was marked by key

steps. It started with a one-year prospective study including clinical, bacterial and seroepidemiological aspects of 1350 pregnant women and their newborns⁵. Through the next 15 yr, several studies were completed. They covered epidemiological and technological aspects and took place more often in the French community of Belgium⁶⁻¹¹. In 1995, the Belgian Public Health Institute, epidemiology section, designated and identified a reference laboratory for GBS in University Hospital of Liege.

In the early 1980s, the reported incidence of GBS early onset disease (EOD) was 3 per 1,000 live births⁵. In 1990, as expected, it had not changed, but in addition the occurrence of 4 likely cases per 1,000 (clinically and biologically consistent with a GBS EOD, but not proved by culture) was reported. In 1999, the estimated incidence was 2 cases per 1,000 live births and 2 likely cases were still reported for each confirmed case¹². Through 1999 to 2001, based on the data collected by the reference laboratory, 4 EOD seemed to occur for 1 late onset disease. Among the EOD, 10 per cent of the neonates had a meningitis. Based on the reported outcomes of EOD, the mortality rate was 14 per cent¹³. In sixty per cent of cases with EOD no maternal risk factors except vaginal colonization was present¹². The GBS carriage rate among pregnant women ranged from 13 to 25 per cent according to hospital location and type⁸.

In 2000, as in many European countries, though no guidelines for the prevention of perinatal GBS diseases were available, in some institutions, obstetrical programmes included a GBS prevention policy. To evaluate the Belgian GBS practices for prevention of perinatal GBS disease, two mail surveys, covering the whole country, were conducted: one in the French Community (Fr) in 1998-1999 and one in the Flemish Community (Fl) in 1999^{6,11}. For this evaluation, the guidelines for prevention of GBS perinatal diseases, issued by the Centers for Disease Control (CDC) in 1996, were used as Gold standard¹⁴. CDC recommended an intrapartum antimicrobial prophylaxis (IAP) for selected women, identified either on a risk-based or a screening-based approach. Through the answers of those who accepted to participate, the Belgian surveys showed significant geographical differences in the obstetricians' clinical practice. Among the Fr obstetricians, 90 per cent had chosen the prenatal screening approach, whereas Fl obstetricians preferred the risk-based approach.

When the risk-based approach was considered for the decision to give an IAP, more than 90 per cent of the Fr obstetricians looked for intrapartum fever and prolonged rupture of membranes, and 58 per cent considered prematurity also as a risk factor. Among Fl obstetricians respectively 57, 36 and 36 per cent considered the three more frequent risk factors to decide on IAP. For their antibioprohylaxis, most of the obstetricians seemed to have forgotten that penicillin G still existed, and preferred amoxicilline. Furthermore, regimen was often inadequate, and more frequently for the Fl obstetricians. Both surveys demonstrated room for improvement and need for coordination between medical partners.

To reduce the perinatal GBS burden, a need for updated, widely accepted guidelines was obvious. Therefore we organized in November 2001 a national consensus meeting for the prevention of perinatal GBS infections. Here we described how this meeting was organized and we reported the conclusive results and consequences.

Material & Methods

All obstetricians, neonatologists, microbiologists and infectious diseases specialists of the country were invited to participate at a consensus meeting in November 2001. The meeting was supported by the different Belgian professional societies in gynecology-obstetrics, in infectious diseases, in microbiology and in neonatology.

The invited speakers were S. Schrag from the CDC, Atlanta, USA, to state the global GBS neonatal burden, to present the guidelines issued by the CDC in 1996, and to argue benefits and adverse effects observed or to expect. D. Davies, from Canada, gave the neonatologist view and reported the Canadian experience. B. Brodeur, also from Canada, stated the perspectives of the vaccine approach; and, M. de la Rosa, from Spain, reported the successful Spanish experience ongoing since a few years for the prevention of perinatal GBS diseases. Belgian speakers presented national epidemiological aspects, argued cost-effectiveness of the different approaches, and debated microbiological, logistic and special problems. Results of the two surveys, previously described, were reported, commented and discussed.

An interactive session was scheduled at the end of the symposium. For this session, each participant had

received an individual keypad to vote electronically “in real time” on each key point of a strategy to recommend in Belgium for the prevention of perinatal GBS diseases. To reach a consensus, an 80 per cent cut-off of agreement between participants was fixed. As many obstetricians from the French community had another important meeting the same day, a new conference, summing up the consensus meeting, was scheduled three weeks later.

Results

Before starting the vote for the strategy to recommend, the participants answered to questions regarding their current practice. The majority of the participants (67 %) practiced in the North of Belgium (the Fl community), whereas only 18 per cent came from the South (Fr community) and 15 per cent from Brussels. Non-university hospitals or clinics were represented by 48 per cent of the participants; 39 per cent practiced in university hospitals and 13 per cent practiced in private and non university hospitals or clinics.

Seventy per cent participants answered that they already had a policy in agreement, or closed to the screening-based approach of the CDC, 10 per cent had a mixed behavior according to the type of population, 3 per cent had no policy at all and the others did not know.

Strategy to recommend: A great majority, 94 per cent of the participants, voted for a universal prenatal screening strategy, based on screening cultures for vaginal and rectal GBS colonization of all women at 35-37 wks’ gestation. No one preferred a risk-based approach, 4 per cent chose another approach and 2 per cent had no opinion. Seventy nine per cent participants voted for an approach which would integrate an antimicrobial prophylaxis for neonates at high risk, as those born to a mother with a chorioamnionitis. Nearly half of the participants (47%) voted for a potential strategy based on a rapid intrapartum screening when a clinically proven effective rapid test would become available.

For the intrapartum antibioprohylaxis, 92.4 per cent were convinced to give penicillin G as the drug of first choice; only a few participants, 3.8 per cent did not agree with this choice and 3.8 per cent had no opinion.

Voting for an alternative agent for penicillin-allergic women, 59.1 per cent participants voted for a first generation cephalosporin, 25.7 per cent clindamycin, 7.6 per cent erythromycin and 7.6 per cent had no opinion.

Many obstetricians from the Fr community attended the conference summing up the consensus meeting. All of them agreed with the perspective of a universal prenatal screening-based strategy and with penicillin G as first choice for IAP.

Very soon after the meeting, the chosen universal screening-based approach and penicillin G for IAP for the prevention of perinatal GBS disease were recommended by both Flemish and French Societies of Gynecology and Obstetrics to their members.

These data and the evidence of GBS burden in the Belgian epidemiology of neonatal infections drew some attention and, a GBS working group was appointed by the Health Council (Belgian Federal Ministry of Health). The working group has to draft and edit guidelines to recommend in Belgium for the prevention of neonatal GBS infections by early 2003.

Discussion

Associated with high morbidity and mortality, infection due to *Streptococcus agalactiae* either in newborn infants or adults and its prevention is a major public health problem. Since last two decades several Belgian studies not only stressed the importance of GBS burden in neonatal infections, but also the need for “Belgian” recommendations for their prevention, to reduce their incidence and related morbidity and mortality.

In the consensus meeting organized in November 2001, a consensus was reached for the two main questions which were the strategy to recommend for identifying the pregnant women who should be given an IAP and, the antimicrobial agent to be given for IAP. The strategy for which Belgian practitioners and experts voted was a universal prenatal screening based-strategy; no one of the participants wanted a risk-based strategy. With this vote, Belgium was a few months in advance, in accord with the revised guidelines issued by CDC in August 2002¹⁵. The state of the question by the different

speakers, the data from Belgian epidemiology, and the debate about cost-effectiveness of different approaches were effective in gathering a majority of the participants for a massive vote in favour of the universal screening-based approach. This vote for future guidelines to be recommended in Belgium showed the impact of the programme of the meeting as 94 per cent participants voted when only 70 per cent of the participants declared to comply currently with this approach. By comparison to the surveys evaluating Belgian practice for prevention of GBS diseases, the change was also well demonstrated, as at that time, less than 50 per cent of FI obstetricians complied with the screening-based approach^{6,11}. At the time of these surveys, most of the obstetricians gave amoxicillin for IAP, but at the consensus meeting, more than 90 per cent voted for penicillin G. Both Belgian professional societies of gynecology-obstetrics and the Ministry of Health reacted quickly. Within a few weeks following the meeting, societies have recommended the universal screening based approach to their members and the Ministry of Health appointed a working group for drafting and editing national recommendations for the prevention of perinatal GBS diseases.

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