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The ''RESEAU MATER'': An efficient infection control for endometritis, but not for urinary tract infection after vaginal delivery

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Summary ''RESEAU MATER'' is useful to monitor nosocomial infections in maternity and contributes to the decreasing trend of it, since its implementation. Specifically, this network demonstrates its efficiency in the control of endometritis following vaginal deliveries, but not in the control of urinary tract infections. The aim of this study is to determine whether the difference between the control of endometritis and of urinary tract infection could be explained by an unsuitable regression model or by an unsuitable care policy concerning urinary cares.

This study includes (1) the analysis of historic data of the network and (2) the description of French guidelines for maternity cares and available evaluations, concerning endometritis and urinary tract infection prevention. Univariate and multivariate odds ratios (ORs) were calculated for the total study period of 1999—2013, for these infections and their risk factors.

The endometritis frequency is decreasing, in association with no significant evolution of associated risk factors, but urinary tract infection frequency is constant, in association with a increasing trend of its risk factors such as intermittent catheterization and epidural analgesia.

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In French guidelines, all preventive measures against endometritis are clearly broadcasted by all field operators, and repeated audits have reinforced the control of their application. But preventive measures against urinary tract infection seem to be broadcasted exclusively in the circle of infection prevention agencies and not in the obstetrics societies or in the Health Ministry communication.
Urinary tract infection prevention requires a clearer public and professional policy in favor of a more efficient urinary cares, with a specific target to maternity.
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Introduction

The grouping of maternities in a network permits a higher oversight in survey and development of efficient programs for nosocomial infection (NI) control. The efficiency of ''RESEAU MATER'' in some nosocomial infections control has been previously established for cesarean section [1] and vaginal deliveries [2]. However, the decreasing trend is not consistent for all types of nosocomial infections: an efficient control of infection is observed, in the network, on three types of infections (endometritis after vaginal deliveries, surgical site infection after cesarean section and urinary tract infection after cesarean section), but not on nosocomial urinary tract infections (UTI) after vaginal deliveries.

The trend of each NI type was monitored using adjusted odds ratios, in association to the risk factors of each NI type, and then interpreted using a logistic regression model. The variables entered into the model were defined according to the literature and to the data collected by the network since 1999, specifically for each NI type. The monitoring data regarding antibiotic prophylaxis for Group B *Streptococcus* on the delivering mother was added in 2005. Preliminary the inclusion of this data in the Network, correlation between the new data and endometritis data has been established [3].

The lack of control of UTI after vaginal delivery, despite specific campaigns about urinary cares in the Network, being a preoccupant situation, thus a study was carried out in order to determine whether this issue could be explained by an unsuitable regression model or by an unsuitable care policy concerning urinary cares. This study was the alone available method, no similar networks being developed in other countries.

This study includes (1) the analysis of all data of the network and (2) the history of French guidelines for maternity cares and practices, concerning endometritis and UTI prevention.

Methods

Populations

Routine surveillance covered all vaginal deliveries between 1st January, 1999, and 31st December, 2013, in the 129 maternity units taking part in the French ''RESEAU MATER''. The participation of individual units was voluntary and could be discontinuous. Data were collected and based on the risk factors documented by a regularly updated critical appraisal of the literature [4—12]: patient age, parity, epidural or general anesthesia, manual removal of placenta or manual examination of uterus or instrumental delivery, use of prophylactic antibiotics, blood loss $\geq$800 mL, >5 digital vaginal touches after rupture of the membranes, induced delivery, premature rupture of the membranes (PROM) more than 12 h before admission, urinary infection during pregnancy and on admission to the unit, fever during delivery, and intermittent urethral catheterization.

Infection surveillance

The following infections were monitored during routine surveillance which includes: urinary tract infections, episiotomy-related infections, bacteremia, endometritis, venous catheter-related infections, and breast infections. However, this study covers endometritis and urinary infections only.

The definition of endometritis was: at least two of the following signs with no other recognized cause: fever (>38 °C), abdominal pain, uterine tenderness, or purulent drainage from the uterus. The microbiological confirmation was excluded from endometritis definition why the network includes large and small maternities. The type of microbio-

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