

STRAMA

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Abstracts of regional studies
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Abstracts of regional studies:

Education of parents with children in day-care centres.

Anita Bylander-Groth, Cura-kliniken, Malmö

Background: 75% of all absence from day-care centres and 10-20% of all visits in primary care centres are caused by respiratory tract infections, where >50% are due to uncomplicated common colds. Consumption of antibiotics among children aged 0-6 years varies widely between the communities in the area that was studied.

Methods: In Vellinge, a community with 30.000 inhabitants, 1.600 children between 1-5 years attend the 30 day-care centres and 200 children are taken care of by "day-mothers" in their private homes. There are 2 primary care centres with altogether 9 general practitioners. Education of parents and staff was offered at evening courses by the local general practitioners and the project leader, an ENT-specialist. The number of medical visits and antibiotic consumption in children 0-6 years was registered before and after the intervention took place and compared to similar groups in another community, Malmö.

Findings: The number of doctor's visits and antibiotic consumption at Vellinge decreased by 14% and 15% respectively in the first period of the study compared to the same period previous year. At the same time the number of doctor's visits at Malmö increased by 2%. The antibiotic consumption however decreased just as much as in Vellinge. During the second period of the study medical visits again increased by 2% at Vellinge but there was a further decrease in antibiotic consumption with 11%. Comparable figures for Malmö were a decrease in the number of medical visits by 14% and an unaltered antibiotic consumption. The quota between number of medical visits and number of prescriptions shows fewer prescriptions/visit in children in Vellinge during this period than the year before and fewer than in Malmö.

Despite the fact that Vellinge still has a high number of prescriptions in children 0-6 years compared to other communities in the area, there was a decrease during the study period compared to the same period the year before, index 88% and 89% respectively, and this index decreased further, to 65%. In most day-care centres there are 18-20 children/group.

Conclusions concerning the correlation between the size of the group and antibiotic consumption could not be done in this study because of the limited time for intervention

Discussion: Despite the limited intervention, approximately 50% of the parents took part in it, a definite decrease in antibiotic prescriptions was found. By engaging local doctors in parental education at day-care centres you can not only increase the parents' ability to evaluate the symptoms of the child but also but also make the doctor aware of their prescription habits.

STRAMA-Tour; Follow-up Of Antibiotic Prescription In Primary Health Care, Trestad Region, Sweden

Eva Lindhusen-Lindhé, Department of Infectious Diseases, Uddevalla Hospital

Background: In response of alarming figures on antibiotic resistance mainly among airwaypathogen bacteria in the area of Trestad, revealed by a national survey in laboratories for microbiology in 1994, and to a trend of escalating antibiotic prescription, the local STRAMA-group of Trestad decided to try to intervene. Doctors in Primary health care stood for a major part of the prescription, and a tour by the STRAMA-group was started 1995, where every Primary Healthcarecenter was visited with lectures on antibiotic resistance, resistance mechanisms and resistance patterns in our region and the country for the most common

pathogens. The meeting was closed up with recommendations for treatment and general discussion. For some years the trends in consumption of antibiotics were sinking. Since 1998, however, consumption figures were again rising. Our project is a revisit-tour to all Primary health-care centres in Trestadregion.

Aim of the project: Refresh the knowledge of antibiotic resistance in the region, the nation and the world, and its coincidence with antibiotic consumption to the doctors in Primary Health care in Trestadregion.

Methods: Lectures on the subjects' antibiotic resistance, comparing data for airway pathogens and E.coli during the 1990-ies from the local laboratory for microbiology, and the prescription of antibiotics from the local healthcare-centre were given, with focus on the local prescription and general discussion.

Findings: Huge differences in prescription between different local healthcare-centres were revealed. Centres with a stable staff of doctors tended to have a lower general level of prescription of antibiotics, and to a use of compounds with a narrow antimicrobial spectrum. They had knowledge of and interest in the antibiotic treatment program of the region. Unfortunately quite a few of the centres in Trestadregion have shortage of stable staff doctors. In these centres, run by temporary working doctors, often lacking competence in Primary Health care, one can clearly see higher total antibiotic prescription, and a tendency to more broad spectrum antibiotics. There is also a lack of knowledge of local antibiotic treating programs.

Interpretation: On comparison of laboratory resistance data in our region we can see that the alarming figures of 1994 concerning pneumococci with I or R to penicillin has stabled on a relatively low level. Resistance to trimethoprim/sulfa in *Haemophilus influenzae* was alarming 25% in 1994, but has normalized to a bit below 10% in 2000, mainly because of sinking prescription to children with otitis, due to STRAMA-information in 1995. We see a too high prescription of tetracyclines in general, in some centres the dominating antibiotic prescribed! In Streptococci group A we see a surprising trend of high tetracycline resistance. E.coli show a growing resistance to ampicillin, which is still relatively well used as treatment for urinary tract infection in children. The same trend can be seen throughout the country.

We clearly see a need for ongoing control of antibiotic prescription, henceforth mainly by the doctors themselves. A revalidated treatment program will be published later 2002. The local STRAMA-group of Trestad work on how to spread this, and how to succeed in reaching the centres with temporary working doctors. The impact of a stable staff of local doctors on a favourable antibiotic prescription- and bacterial resistance situation seems clear, but need further study.

Quality aspects on antibiotic usage in a Swedish university hospital before the introduction of an infection control programme.

Johan Struwe, Departments of Infectious Diseases and Hospital Hygiene, Huddinge University Hospital

Läkartidningen 2002;99:32-33,3211-3213.

Background: Antibiotic pressure, measured as the number of DDD (Defined Daily Doses) per 100 bed-days, may be one important factor for the development of antibiotic resistance. Whereas figures of antibiotic consumption are readily available from the hospital pharmacies, little is known about what the antibiotics are used for.

Methods: In a point prevalence study 46 wards were visited once during the period April 24-June 16, year 2000. Patients with antibiotic treatment were identified and the medical records were reviewed according to a protocol. Diagnoses as documented in the medical records were registered for treated patients, oral information was recorded for patients on prophylaxis.

Findings: Altogether 236/723 (33 %) of the patients were on antibiotics; four had both treatment and prophylaxis, 177 treatment only and 54 prophylaxis only. For one patient it was impossible to determine whether it was treatment or prophylaxis.

At least one indication for antibiotic treatment was documented in the medical record for 158/181 (87 %) of the treated patients. In another 7 patients (3,9 %) oral information was available from the responsible nurse. Non-specific conditions such as "high CRP", fever of unknown origin, post-operative difficulties etc were the indications for treatment of 11 % of the patients.

Antibiotic therapy was initiated within two days of admission in 113 and after more than two days in 68. The rates of cultures before treatment were 68 % and 72 %, respectively.

Thirty patients were on surgical prophylaxis, among whom 13 (43 %) still were on prophylaxis at least one day post-operatively.

Medical prophylaxis was given to 25 patients with defined immune-deficiencies (19 of whom were transplanted).

Interpretations: A distinct documented indication for antibiotic treatment was missing in 24 % of all treated patients. Documentation of tentative, or verified diagnosis, is a prerequisite for the discussion of adequacy of empiric treatment. Routines can be improved, maybe with the help from computerised medical records.

Even if rates of cultures before treatment around 70 % can be considered acceptable, the rate can still be improved particularly among patients admitted > 2 days before treatment, where risk for infection with nosocomial, and thus more resistant, strains is increased.

The proportion of patients on prolonged surgical prophylaxis seemed, as in other studies, unacceptably high. Review of clinical routines according to guidelines recently published by the Swedish Medical Products Agency, is necessary.

The proportion receiving medical prophylaxis was surprisingly high. Since many of these patients receive quinolones or trimethoprim-sulfamethoxazole, careful attention should be paid to the development of resistance among gramnegatives in these units.

Antibiotic usage in nursing home residents

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Läkartidningen 2002;99:40, 3945-3949

The antibiotic usage in nursing home residents was registered during a six-month period in four communities in the County of Skaraborg, Sweden from November 1998 to April 1999.

Antibiotics were prescribed because of urinary tract infection in 52 %, respiratory tract infection in 21% and infection of the skin or soft tissues in 12%.

The number of antibiotic prescriptions varied in the four communities from 0.7 to 1.8 per resident and year.

Quinolones were used in 23% and trimethoprim/sulfamethoxazole in 12% of the urinary tract infections, which is not in accordance with the recommendation as second line choices in most urinary tract infections.

The recommendations and routines concerning treatment of infections in nursing homes need to be discussed with doctors as well as nurses.

STRAMA questionnaire on general practitioners' knowledge concerning antibiotics and resistance. Lack of time impedes exchange of information.

Ann Tammelin, Department of Clinical Bacteriology, Huddinge University Hospital

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The Uppsala county regional group of the Swedish Strategic Programme for the Rational Use of Antimicrobial Agents and Surveillance of Resistance (STRAMA) sent a questionnaire to all the general practitioners in the county concerning their knowledge of antibiotics and bacterial resistance. The questionnaire also asked which sources were used for information on these topics, and inquired as to their views concerning the services provided by the local clinical microbiological laboratory. A third part of the questionnaire contained descriptions of three patients with infectious diseases, and each general practitioner was asked to indicate appropriate diagnostic tests and/or antibiotic treatment. The questionnaire was completed by 70% (100/145). The general awareness of which antibiotics to use for empirical treatment of urinary tract infection was good. Awareness of antibiotic resistance in *S. pyogenes*, *H. influenzae*, *S. pneumoniae* and MRSA was moderately good (59–80%). About 60% thought it was difficult to find information concerning resistance and use of antibiotics. Lack of time was the main reason for not being able to seek such information actively. The regional STRAMA-group believes that this kind of survey followed by reporting back of results with informative comments on the topics concerned is a useful model for education.

Antibiotic treatment of cystitis, otitis media and pneumonia in the County of Västmanland - implementing local guidelines by self-instruction.

Magnus Thore, Department of Clinical Microbiology, Västerås Central Hospital

Background: Reviews of the yearly surveys of antibiotic prescription in the County of Västmanland have revealed a possible overuse of quinolones in the treatment of uncomplicated urinary tract infections. Similarly, cephalosporins may be overused in the treatment of otitis media and, again, quinolones together with tetracyclines and cephalosporins in cases of pneumonia requiring hospital care. The main objective of this study is to influence the prescribing physician to treat such infections in accordance with our current local guidelines, by asking them during a period of time to motivate every choice of antibiotic drug in writing using a simple questionnaire supplied with a draft of the guidelines. The long-term effect of this intervention will be evaluated.

Methods : The **first phase** of the study was designed as a **retrospective survey** of the actual pattern of antibiotic use in the treatment of cystitis and otitis media in primary health care and pneumonia in hospitalised patients. Eight health centres in Västmanland and the departments of infectious diseases, internal medicine and paediatrics at the central hospital of Västerås were included. Software was designed to extract and present relevant stored information from the computer system (Profdoc) used in the health centres, concerning patients treated for cystitis or otitis media during a three-month period during the summer of 2001. In order to secure the same kind of information regarding inpatients treated for pneumonia in the year of 2001, a comprehensive form was used for manual recording of data from the patient journals. The **second phase** of the study was designed as an **intervention** during a period of three

month. Physicians at four of the participating health centres were asked, for each patient presenting with cystitis or otitis media, to fill in a simple questionnaire supplied with a draft of the current local guidelines, thus providing information regarding choice of antibiotic and the reason for this decision. Physicians at the other health centres were designated as controls. A similar intervention is planned but not yet designed for the physicians treating inpatients for pneumonia. In a **final third phase**, starting three to six months after conclusion of the second phase, a **new retrospective survey** similar to the initial one is planned.

Findings: Preliminary results confirm the assumptions outlined above concerning overuse of some antibiotics in the treatment of cystitis and otitis media. However, to avoid bias, full data will be presented when the whole study is completed. The second phase of the study, that is the intervention at the four health centres, is accomplished comprising 111 patients with otitis media and 179 patients with cystitis. These were mostly treated according to our guidelines.

Interpretation: So far, our experience of using a simple “self-instructing” questionnaire as a means of intervention in order to influence the physicians to follow our current local guidelines for antibiotic treatment is promising. However, the long-term effect of this kind of intervention remains to be evaluated. In addition, as regards the patients treated for pneumonia we also hope to gain valuable knowledge for future modifications of our guidelines.

Risk-factors for Ampicillin-Resistant *Enterococcus faecium* Bacteremia in a Hematology Unit and Presence of the *esp* Gene in Isolates

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Background: Risk factors for bacteremia with ampicillin-resistant *E. faecium* (ARE) in a hematology unit (HU) at a university hospital and the presence of the *esp* gene in ARE blood and surveillance isolates from this unit during 1994- 2001 was investigated.

Methods: 34 bacteremia cases and 68 controls were included in a matched case-control study. 92 ARE isolates in blood and colonized sites from patients in the HU were analyzed for the presence of the variant *esp* gene by PCR. 29 ARE blood isolates were analyzed with PFGE.

Results: By univariate analysis, hematopoietic stem cell transplantation during the stay (HSCT), ARE colonization at admission and prescription of antibiotics for >6 days were associated with ARE bacteremia. Death rates were higher among cases than controls (OR 17.0 95%CI 1.9-153). By multivariate analysis, ARE colonization at admission (6.01, 95%CI 1.45-25.0) and HSCT (OR 6.18, 95%CI 1.03-37.0) were independent risk factors. PFGE of genomic DNA indicated clonality among ARE in blood-isolates in 1994-95, thereafter polyclonality. The variant *esp* gene was common among all ARE isolates (56/92) but was more prevalent in isolates from colonized sites (45/63) compared to blood isolates (11/29).

Conclusions: HSCT and ARE colonization at admission were the only independent risk factors for ARE bacteremia. Patient to patient spread was more common in the beginning compared to the end of the 7 years studied. The variant *esp* gene was commonly found among ARE in the unit but was less prevalent in blood compared to surveillance isolates and thus not associated with increased invasiveness of ARE.

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