



INCREASING SKIN INFECTIONS AND STAPHYLOCOCCUS AUREUS COMPLICATIONS IN CHILDREN

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ABSTRACT The current scenario, general practitioner consultations for skin conditions for children <18 years of age in North India increased 19%, from 128.5 to 152.9/1,000 child-years, and Anti Staphylococcal drug prescription rates increased 64%, from 17.8 to 29.1/1,000 child-years. There is also significant increase in hospital admissions for Staphylococcus aureus infections 49% from 53.4 to 79.3/100,000 child-years.

KEYWORDS :

INTRODUCTION

Staphylococcus aureus infection is a leading cause of staphylococcal bacteremia in adults (1) and children (2) in hospitals, and recent reports suggest invasive staphylococci are emerging from the community (3). Flucloxacillin is the antimicrobial drug recommended for treating S. aureus skin infection in primary care centers (4). Therefore, its use provides a proxy marker of S. aureus skin infection in children. Flucloxacillin prescribing in children has increased over the past 15 years (5),

The Study

The MediPlus database contains anonymized longitudinal data from >500 general practitioners who contribute clinical data on >1 million patients (7) that have been used widely for research (8). Consultations are coded by using the International Classification of Diseases, Tenth Revision (ICD-10), and antimicrobial drug prescriptions are coded by using the British National Formulary for children, Chapters 5.1.1–5.1.3 (9). Using Mediplus, we extracted data on all skin conditions (ICD-10 code) and atopic dermatitis (ICD-10 code L20) as an index condition in children <18 years of age who saw general practitioners from January 1, 2025, through May, 2025. We counted prescriptions for all oral and topical antibacterial drugs prescribed for skin infections, and used all oral preparations containing flucloxacillin prescribed for skin conditions as a proxy measure of unresolved S. aureus skin infection. We calculated age–sex adjusted annual consulting and prescribing rates by totaling the number of consultations or prescriptions and dividing by the number of person–years contributed by each child in the registered population.

RESULT

The Mediplus database contained 2,821,372 child FOR follow-up. General practitioner consultation rates for all skin conditions in children rose from 128.5 (95% CI 127.2–129.8) per 1,000 child-years, to 152.9 (95% CI 151.4–154.5) per 1,000 child years ($p = 0.011$). Atopic eczema consultation rates decreased during this time. In parallel with the rising number of skin consultations was a 64% increase in prescribing rates for antistaphylococcal drugs (flucloxacillin), from 17.8 (95% CI 17.3–18.3) to 29.1 (95% CI 28.5–29.8) prescriptions per 1,000 child-years ($p < 0.001$). Prescribing of all other antibacterial drugs for children for any reason decreased from 541.4 (95% CI 538.8–544.1) per 1,000 child-years to 484.3 (95% CI 481.6–487.0) per 1,000 child-years. Flucloxacillin was the most commonly prescribed antibacterial drug for all skin conditions (37%). Prescribing rates for other classes of anti-bacterial drugs used for skin infections, notably, combined preparations of amoxicillin and clavulanic acid 2% and fusidic acid (<2%), were stable over the time period. During this period unplanned hospital admission rates for skin, bone, and joint infections in all children increased by 49% from 53.4 (95% CI 52.1–54.7) to 79.3 (95% CI 77.7–80.9) per 100,000 child-years ($p < 0.001$) including cellulitis (67.8% increase; $p < 0.001$), skin abscesses (36.7% increase; $p < 0.001$), and osteomyelitis (46.1% increase; $p = 0.004$). This trend was consistent across all age groups. Admission rates for septic arthritis increased but the result of the test for trend was not significant ($p = 0.128$).

CONCLUSIONS

The increasing incidence of childhood skin infections and prescribing of the major antistaphylococcal drug flucloxacillin seen in primary care, coupled with concurrent increases in childhood hospital

admissions for skin bone and joint infections caused by S. aureus in hospitals in North India, suggests an increase in community-onset S. aureus disease over the past 10 years. The time frame, a large nationally representative population, use of prospectively collected data, and consistency of patterns make it unlikely our findings arose by chance. Because HES data records primary diagnosis when patients are admitted, most infections will be community-, not hospital-, acquired. Flucloxacillin has remained the treatment of choice for S. aureus skin infections in primary care for decades (9), and its increased use is not explained by treatment drift from other groups of antibacterial drugs used to treat skin infections or by increasing antibacterial drug treatment of atopic eczema colonized with staphylococci. Total unplanned admission rates in children <19 years of age have increased by 13% during 1997–2006 (12), but these increases are modest compared with the 49% increase in S. aureus complications seen over the same time frame in our study.

Limitations of our study include the use of clinically coded proxy measures for S. aureus infections that are subject to recording bias.

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