Open air children playgrounds: the importance of microbial control of floor

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Introduction

Playgrounds are places of entertainment integrated in society, they serve the child population, and they are generally regarded as safe areas. However, dogs, birds and other animals share the environment and children could be exposed to a variety of microorganisms, some of them potentially pathogenic carrying antibiotic resistance.

Materials and Methods

During nine months, 30 playgrounds, located in grand area of Lisboa, were examined twice per month. The samples have been collected near the surface of playground toys and trees and consisted of pebble stone (5mm), synthetic floor and sand. The washing solutions of sand and pebble stone, and the solution where the swabs were immersed from synthetic floor were used to inoculate different culture media. Biochemical tests and antimicrobial susceptibility were determined among selected bacteria.

Results

- The total amount of microorganisms were variable among the 30 playgrounds. Low contamination is directly related to the cleaning conditions, animal control of the facilities and social status of population.
- Climatic changes have a major impact on microbial flora: the increase on temperature and the reduction of rainfall resulted in a significant decrease in the quantity of microorganisms.
- The type of floor influenced the results: synthetic floor showed the higher number of isolates with antibiotic resistance.
- *Staphylococcus aureus* coagulase-positive was isolated with major incidence during winter time.
- Resistance to antibiotics used in clinical practice was detected in bacteria isolated from different playgrounds.
- At the end of the study, we analysed samples collected after the hygiene and cleanliness of the playgrounds. The number of microorganisms lowered significantly, showing that this control is essential, when repeated periodically, and performed by playground cleaning specialists.

Conclusions

The importance of microbiological control was demonstrated in our work, emphasizing the need for cleaning of playgrounds that could serve as the vehicle of transmission of pathogenic microorganisms.

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