

Relationship Between Chlorinated Pools and Bronchial Asthma

Dear Editor,

In the last few years there has been many reports on the possible effects that swimming pool Chlorine should have on respiratory symptoms in kids.

It is common knowledge that Chlorine, binding with derivatives of organic fluids (such as sweat and saliva) forms volatile compounds (as Chloramine) which are irritant for the respiratory tract.

These remarks are on the basis of the work of^{1–5} since they noticed a correlation between the hours spent in a swimming pool and wheezing in kids.

During our clinical activity, we have evaluated a group of 100 children affected by bronchial asthma or recurring wheezing, on an age range of 10–16 years and 6 months (average age 12.7), 58 males and 42 females.

Comparing medical history, respiratory functionality and allergic sensitization with the number of hours spent in a swimming pool (cumulated pool attendance, CPA) data show that

- There is a positive correlation between the respiratory functionality and CPA to the limits of statistical significance ($P=0.06$ for FEV1, $P=0.08$ for MEF25) (Table 1).
- Children who do not attend swimming pools are positive to skin tests more often (90%) than those who do (66.9% if they swim less than 200 hr, 71.9% if they swim between 200 and 400 hr, 71.5% if they swim for more than 400 hr); the difference has a significant statistical value ($P=0.04$) (Table 1).
- Children who never attended a swimming pool show a high percentage of serious and persistent asthma (16.7%) and such percentage tends to decrease in children who have been practicing swimming, proportionally, according to the total number of hours they spent in a swimming pool (CPA). This correlation has a significant statistical value ($P=0.01$) (Table 1).

The same correlation is absent in the other levels of seriousness of asthma.

Furthermore, to verify the results, we have compared the same patients with a controlling group made of children treated for functional cardiac murmur in the same

Ward of the Cardiology Division and presenting the same negative medical history for respiratory symptoms. Both groups can be compared for age and sex.

The results say that there is no difference in percentage between children who attend a swimming pool: 70% among asthmatics and 72% among the controlling group.

Therefore, our data show that swimming is not a risk factor for bronchial asthma, but a protection factor against serious asthma.

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TABLE 1—CPA Value

	Never	0–200 hr	200–400 hr	>400 hr	<i>P</i> -Value
Spirometric parameters					
FEV1	93.3 ± 2.26	81.6 ± 0.14	89.9 ± 0.14	95.6 ± 3.89	0.06
MEF 25	90.7 ± 2.65	80.9 ± 4.28	86.1 ± 0.60	90.1 ± 2.23	0.08
Allergic sensitivity					Results (%)
Negative prick testing	3 (10%)	8 (33.3%)	9 (28.1%)	4 (28.5%)	24%
Monosensitivity	11 (36.6%)	2 (8.3%)	3 (9.3%)	3 (21.5%)	19%
Polisensitivity	16 (53.4%)	14 (58.4%)	20 (62.6%)	7 (50%)	57%
					0.04
Asthma					
Intermittent asthma	16 (53.3%)	11 (45.8%)	18 (54.5%)	10 (76.9%)	0.09
Light persistent asthma	5 (16.7%)	6 (25%)	10 (30.3%)	2 (15.4%)	0.1
Moderate persistent asthma	4 (13.3%)	4 (16.7%)	4 (12.2%)	1 (7.7%)	0.3
Severe persistent asthma	5 (16.7%)	3 (12.5%)	1 (3%)	0 (0%)	0.01