

APPLICATION OF ICE WATER TO THE FACE IN INITIAL TREATMENT OF SUPRAVENTRICULAR TACHYCARDIA*

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SUMMARY: Aydın M, Baysal K, Küçüködük Ş, Çetinkaya F, Yaman Ş. (Department of Pediatrics, Ondokuz Mayıs University Faculty of Medicine, Samsun, Turkey). Application of ice water to the face in initial treatment of supraventricular tachycardia. Turk J Pediatr 1995; 37: 15-17.

Supraventricular tachycardia (SVT) is a life-threatening dysrhythmia in childhood. Initial treatment includes classic vagal maneuvers, some pharmacological agents, cardioversion and application of ice water to the face. In this paper we report our results of ice water application to the face in SVT. The study included ten patients between the ages of seven days and 15 years who were admitted to our hospital with supraventricular tachycardia in the previous year. Ice water was applied to their faces for five seconds immediately and all of them were digitalized. This procedure was utilized in 28 out of 36 SVT attacks, and was found to be effective in restoring sinus rhythm on 27 of 28 occasions (96%). Tachycardia recurred a total of 18 times in three of the ten patients. There was no recurrence in six patients. No response was noted in only one patient. Application of ice water to the face is an easy, safe, effective and repeatable procedure in the initial treatment of supraventricular tachycardia. *Key words:* supraventricular tachycardia, treatment, diving reflex.

Supraventricular tachycardia (SVT) is dangerous and potentially fatal. Rapid conversion to sinus rhythm is imperative. Many methods of treatment have been recommended, such as classic vagal maneuvers, some pharmacological agents and cardioversion¹. However, these methods are usually insufficient in terminating tachycardia and may have fatal risks.

Application of ice water to the face (AIWF) stimulates "the diving reflex", and may stop tachycardia. We used this procedure in the treatment of SVT in ten patients.

Material and Methods

The patient group consisted of six males and four females between the ages of seven days and 15 years. The ventricular rate during SVT varied from 200 to 290 beats/min. One patient had been diagnosed with cardiomyopathy two years earlier.

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Procedure: The diving reflex was stimulated through immersion of the patients' faces in a basin of ice water (3-5 °C) for five seconds, and all patients were digitalized².

Results

AIWF was used in 28 of 36 SVT attacks and was found effective in restoring sinus rhythm on 27 of 28 occasions (96%). Tachycardia recurred a total of 18 times in three of the ten patients. No recurrence occurred in six patients, and only one patient did not respond to the procedure (Table I).

Table I: Results of AIWF in Initial Treatment of SVT

Patient No.	Age	Sex	SVT Attacks	AIWF	Conversion to Sinus Rhythm	Recurrences
1 ^a	8 yr	m	12	6	6	5
2 ^b	6 yr	f	2	1	1	—
3	4 mo	m	1	1	1	—
4 ^c	2 mo	m	1	1	—	—
5	16 d	m	1	1	1	—
6	7 d	f	6	6	6	5
7 ^b	11 yr	f	2	1	1	—
8 ^d	8 yr	m	9	9	9	8
9	15 yr	m	1	1	1	—
10	2 mo	f	1	1	1	—
			36	28	27	18

^a The procedure was not applied in the first six attacks.

^b The procedure was not applied in the first attack.

^c Patient had meningitis.

^d Patient had cardiomyopathy.

m : male

f : female

mo : month

d : day

Spontaneous remission was seen in the first attack of Case 7.

Discussion

The diving reflex is an oxygen-conserving reflex consisting of striking bradycardia and peripheral vasoconstriction for increasing blood flow of the brain and heart. It is initiated partly through the stimulation of the afferent nerve ending in the area of the mouth and nose with cold water. The afferent limb of the reflex is mediated by increased sympathetic stimulation to peripheral vessels and, simultaneously, by intense vagal stimulation to the heart³⁻⁵.

Application of ice water to the face is rapidly effective in more than 90% of cases. It is an easy, safe, noninvasive and painless procedure with no side

effects. Recurrence of tachycardia is fairly common, but the treatment is easy to repeat. This maneuver is also useful in patients who are receiving digitalis⁶.

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