TUBOTIMPANITIS. AUDIOMETRIC PROFILES

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Material on Study

In a series of 81 cases, 29 were discarded for the reason that they were not imputable to the secretory otitis media. The remaining 52 cases have been classified in 3 groups, according to their bone conduction thresholds, as follow:

1) From 0 to 10 db: serous type, 12 cases
   mucous type, 7 cases — Total, 19 cases (36,55 %)
2) From 10 to 10 db: serous type, 11 cases
   mucous type, 8 cases — Total, 19 cases (36,55 %)
3) From 20 to 30 db: serous type, 7 cases
   mucous type, 7 cases — Total, 14 cases (26,90 %)

The threshold curves

Five types of hearing thresholds were considered:

1) Gradual hearing loss toward the acute tones.
2) Sudden hearing loss in the acute tones
3) Greater hearing loss in the low tone frequencies
4) Greater hearing loss in the middle frequencies
5) Flat hearing loss

For the air conduction, the frequencies of 128, 256, 512, 1024, 2048, 4096 and 8192 cps have been considered, and for the bone conduction, from 128 to the 4096 cps.

In the 0-10 db B.C. group, 28 ears were studied because some cases were bilateral; in the B.C. group from 10 to 20 db, 31 profiles, and in the 20-30 db B.C. group, 21 threshold curves.

In the group with a bone conduction loss (B.C.) from 20 to 30 db: 10 (47.6 %) were the result of acoustic trauma; 1 (4.8 %) by otosclerosis, and 10 (47,6 %) of unknown origin.

The possible relation between sex and age in the cases discarded because of unknown origins was studied.

It is important to remark that in a total of 81 cases, there were 21 females (25,95%) and 60 males (74.05%).

B.C. Group from 0 to 10 db (19 cases): 5 females (26.30%) and 14 males (73.70 %).

B.C. Group from 10 to 20 db (27 cases): 5 females (18.50 %) and 22 males (81.50 %).

From the 8 discarded cases: 2 females (25 %) and 6 males (75 %). From the 4 discarded cases for unknown origin: 1 female (25 %) and 6 males (75 %).

B.C. Group from 20 tot 30 db (35 cases): 11 females (31.45 %) and 24 males (68.55 %). From the 21 discarded cases: 3 females (14.30 % and 18 males (85.70 %).

The disproportion with the previous cases is very likely caused by reasons of work rather than sex reasons, since in the 21 discarded cases, 10 (47.61 %) were by acoustic trauma, and, because of professional aspects, all pertaining to males. Instead, facing the 10 discarded cases of unknown origin, 3 were females (30 %), and 7 males (70 %).

On the analysis of the results, it must be emphasized that sex had had no influence in the discard of the cases.

When the age was considered, it was established:

B.C. Group from 0 to 10 db (19 cases): 16 were younger than 45 (74.20 %)
B.C. Group from 10 to 20 db (27 cases): 20 were younger than 45 (50 %)
B.C. Group from 20 to 30 db (35 cases): 17 were younger than 45 (48.50 %).
From a total of 21 discarded cases, 7 were younger than 45 (33.33 %). From the 10 discarded cases for unknown causes, no one was younger than 45 (0 %).

From all the results it was inferred that age has an important influence on the exclusion of the cases when the B.C. was among 20 to 30 db and, to a less extent, among the 10 to 20 db group.

Material on study

After the elimination of the referred 29 cases, 52 remained as material of analysis with the following distribution:

1) B.C. group from 0 to 10 db: serous type, 12 cases
Total 19 cases (36.55 %)
mucous type, 7 cases

2) B.C. group from 10 to 20 db: serous type, 11 cases
Total 19 cases (36.55 %)
mucous type, 8 cases

3) B.C. group from 20 to 30 db: serous type, 7 cases
Total 14 cases (26.90 %)
mucous type, 7 cases

Their distribution according to age (table I) and sex (table II).

GROUP	-25		26-35		36-45		46-55		56-65		+65		TOTAL
0_10 B	3	15^{70}	6	31^{70}	7	36^{85}	2	10^{50}	1	5^{25}	-	-	19
10_20 dB	2	7^{45}	4	14^{80}	13	48^{10}	5	18^{50}	2	7^{45}	1	3^{70}	27
20_30 dB	1	2^{05}	8	22^{85}	8	22^{85}	6	17^{15}	10	28^{60}	2	5^{70}	35

Table I. Distribution according to age.

	B.C. 0_10		B.C. 10_20		B.C. 20_30			
♀	5	26^{30}	5	18^{50}	11	31^{45}	21	25^{95}
♂	14	73^{70}	22	81^{50}	24	68^{55}	60	74^{05}
	19		27		35			
	81 CASES							

Table II. Distribution according to sex.

Bone conduction threshold

a) B.C. group from 10 to 20 db: There was a total of 31 profiles studied because in many of the 19 cases the disease was bilateral.

The threshold distribution was as follows: profile 1, 12 ears (38.70 %); profile 2, 11 ears (35.50%); profile 5, 8 ears (25.80%). If we take in consideration the cases in which exist an accent on the higher frequencies, we see that the 23 audiometric profiles reach the 74.20 %; and if we take into account the acute tones' fall, they reach the 100 %.

b) B.C. group from 20 to 30 db; in 14 cases, 21 curves are studied. Profile 1, 3 cases (14.30 %); profile 2, 9 cases (42.85 %); profile 4, 3 ears (14.30 %); profile 5, 6 ears (28.55 %).

The higher frequencies are of interest in 12 cases (57.15 %), and affected in 18 cases (85.70 %).

Air conduction threshold

a) B.C. group from 0 to 10 db; in 19 cases 28 ears were studied divided as follows: profile 1, 17 cases (60.70 %); profile 2, 5 cases (17.85 %); profile 3, 1 case (3.60 %); profile 4, 2 cases (7.15 %); profile 5, 3 cases (10.70 %).

The high frequencies are principally of interest in 12 cases (78.55 %); in 15 cases (89.25 %) the acute tones were affected.

b) B.C. group from 10 to 20 db; from all the 31 ears, 14 (45.15 %) belong to profile 1; 4 (12.90 %) to profile 2; 1 (3.25 %) to profile 3, 2 (6.45 %) to profile 4; and 10 (32.25 %) to profile 5.

In 58.05 % (18 cases), the high tones are preferently affected, and in 28 cases (90.30 %) there is a loss in the acute frequencies.

c. B.C. group from 20 to 30 db: The 21 cases are divided as follows: profile 1, 10 ears (47.60 %); profile 2, 4 ears (19.05 %); profile 4, 3 ears (14.30 %); profile 5, 4 ears (19.05 %).

The high frequencies are primarily affected in 14 cases (66.65 %), and of interest in 18 cases (65.70 %).

Comments

If we compare the primary loss in the acute tones in the B.C., we can see that in the B.C. group from 10 to 20 db there are 23 ears (74.20 %), meanwhile in the B.C. group from 20 to 30 db there are 12 ears (57.15 %).

The possible influence of the age on these losses of the acute tones was inquired on a basis of 45 years or age; it was established that in the last group 11 cases (91.65 %) were below this age and that in the group of the 10 to 20 db, 14 ears (60.85 %) belong to patients younger than 45.

We see in the comparison of the higher loss in acute frequencies for the air conduction, the following percentages: B.C. group from 0 to 10 db, 78.55 %; B.C. group from 10 to 20 db, 59.05 %; B.C. group from 20 to 30 db, 66.65 %. From all these results it is deduced that the higher percentage belongs to cases in which the bone conduction remained better, and is an eloquent index of the shift in the transmission system as origin of the hearing loss.

V. Goodhill and A. L. Holcomb in an experimental study on the cat attempted to see the action of the various viscosity liquids (measured by the cochlear microphones), when placed in the middle ear. In this way, they observed that with liquids having little viscosity there was a fall in the high frequencies for the bone conduction; accordingly if there was an increase in the viscosity, the low frequencies were included and the profile tended to become flat. Only for liquids of great viscosity there was in the bone conduction a decrease for the low frequencies.

In our clinical study the high frequencies were more affected, both the air conduction as the bone conduction, all of which was not in agreement with the observations mentioned by the authors, and specially the relation with the B.C. It is important to remark that for technical reasons we cannot perform the viscosimetry of spilled liquids. It is our intension, when doing this, to establish a relation between the hearing loss and the greater or minor viscosity of the liquid contained in the middle ear.

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