

POSITION PAPER

Adeno-tonsillar surgery in Italy

La chirurgia adeno-tonsillare in Italia

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SUMMARY

Indications to surgery for adeno-tonsillar inflammatory disorders and analysis of the effectiveness of surgical treatment, compared with watchful waiting strategy, continue to be the subject of scientific debate. The present investigation focuses on the surgical activity of 14 Italian Otorhinolaryngological Units between 1999 and 2004. Surgical interventions (adeno-tonsillectomy, adenoidectomy, tonsillectomy) on 26915 children (age range: 2-11 years) were considered. Data on adeno-tonsillar interventions were analysed in relation to other interventions of ENT interest, performed in the same units and in the same period. Adeno-tonsillar interventions accounted for 35.4% of all operations of ENT interest. Adeno-tonsillectomy accounted for 56.6% of overall adeno-tonsillar operations, adenoidectomy 31.6%, tonsillectomy 11.8%. The percentage for the three interventions was homogeneous in the period of the study and in the recruited units. The percentage of children who underwent adeno-tonsillar surgery in paediatric units was higher as compared to general units, as far as concerns the overall number of operations performed. In southern Italy, the number of adeno-tonsillar interventions, in general, and of adeno-tonsillectomy, in particular, was higher compared to that in northern Italy. Results of the present study suggest that environmental factors, cultural issues and local health demands, may influence indications and, therefore, the different incidence of the operations under consideration in the units taking part in the investigation.

KEY WORDS: Tonsillectomy • Adenoidectomy • Adeno-tonsillectomy • Multi-centric study

RIASSUNTO

Le indicazioni al trattamento chirurgico nella patologia delle tonsille palatine e delle vegetazioni adenoidi continuano a sollecitare un vivace dibattito scientifico. La nostra ricerca ha riguardato l'attività chirurgica di 14 Centri specialistici otorinolaringoiatrici; sono stati presi in considerazione 26.915 pazienti, con età compresa fra i 2 e gli 11 anni, sottoposti ad interventi chirurgici faringei (adeno-tonsillectomia, adenoidectomia e tonsillectomia), nell'arco di tempo compreso fra il 1999 ed il 2004, per una patologia infiammatoria tonsillare e/o adenoidica; i dati relativi a questi pazienti sono stati analizzati tenendo conto degli altri interventi di interesse specialistico, eseguiti negli stessi Centri e nello stesso periodo. Gli interventi faringei costituiscono il 35,4% delle operazioni di competenza specialistica; le adenotonsillectomie incidono sul numero totale di operazioni faringee per il 56,6%, le adenoidectomie per il 31,6% e le tonsillectomie per il 11,8%. L'andamento delle percentuali medie, per i tre interventi, negli anni considerati, è omogeneo; vi è, però, una tendenza alla riduzione delle adenotonsillectomie con un corrispondente aumento degli altri due interventi. Nei Centri che operano in Ospedali Pediatrici il numero percentuale di casi sottoposto ad interventi faringei, in relazione al numero totale di operazioni, è nettamente superiore. Nel meridione d'Italia, il numero degli interventi faringei in generale e quello delle adeno-tonsillectomie in particolare, è più elevato, rispetto al settentrione. I dati raccolti nei singoli Centri, però, si discostano, talora, dalle medie per quanto riguarda sia l'andamento delle percentuali degli interventi negli anni oggetto dello studio, sia l'incidenza reciproca delle tre operazioni faringee studiate. I risultati del nostro studio e le osservazioni riportate in letteratura fanno presumere che fattori socio-ambientali, oltre che indirizzi culturali ed esigenze sanitarie locali, possano influenzare le indicazioni e la diversa incidenza degli interventi studiati.

PAROLE CHIAVE: Tonsillectomia • Adenoidectomia • Adeno-tonsillectomia • Studio multicentrico

Introduction

Scientific debates, over the last few years, have focused on the surgical indications for the treatment of inflammatory conditions of the adenoids and palatine tonsils in children and the effectiveness of surgical procedures, compared with the possibilities of watchful waiting^{1,2}.

A difference of opinion, on this subject, is due to the differences concerning the criteria adopted in the various studies for the evaluation of the results. This issue has assumed particular importance, since, on the basis of the results emerging from well-known randomized control trials^{3,4}, guidelines have been elaborated⁵⁻⁸, directly or indirectly influencing clinical practice behaviour.

Aim of the study

The aim of the present research was to establish, on the basis of an epidemiological multi-centric investigation, the incidence of adeno-tonsillar surgical interventions (adeno-tonsillectomy, adenoidectomy, tonsillectomy) performed in children, in Otorhinolaryngology Units in different Italian regions, with reference to other surgical interventions of ENT interest, effected in these Units.

Material and methods

Overall, 14 Otorhinolaryngology Units took part in the study (Table I): of these, 11 were General (1, 3, 4, 6, 7,

8, 9, 11-14) and 3 Paediatric Units (2, 5, 10). Samples 1-9 are located in northern Italy; samples 10-14 in southern Italy; samples 2, 5 and 10 refer to Paediatric Units. The participating clinical units reported data related to 26,915 children who underwent adeno-tonsillar surgery (Table I), and 79,225 patients who underwent other operations of otorhinolaryngological interest, between 1999-2004 (in sample n. 2, recruitment started from 2001. In sample n. 11, recruitment was interrupted in 2003, for technical reasons). An analysis of data has been made considering the percentage of children who underwent adeno-tonsillar surgery, with reference to the overall number of operations of ENT competence performed in the same period in each of the different participating units. The percentage of cases submitted to each of the mentioned operations under study, in relation to the overall number of adeno-tonsillar procedures, was also considered.

Results

Case distribution in the General Unit samples

A high variability in the number of adeno-tonsillar interventions, in relation to the overall number of operations performed, in each unit, was observed. Incidence of adeno-tonsillar interventions, as compared to other otorhinolaryngological operations, was almost homogeneous in samples 1, 3, 4, 8 and 9, while it increased progressively in samples 2 and 7 and decreased progressively in samples 6 and 13; the same parameter was highly irregular

Table I. The absolute number of adeno-tonsillar interventions is reported for each unit recruited in the study during the years of the investigation. Overall number of surgical operations has been subdivided for geographical area (northern and southern Italy) and for type of unit (General and Paediatric Units).

	Adeno-tonsillar surgery						Total
	1999	2000	2001	2002	2003	2004	
Unit 1 (Conticello - Torino)	72	68	67	98	81	85	471
Unit 2 (Taormina - Torino)	0	0	38	43	54	80	215
Unit 3 (Mira - Pavia)	385	408	433	531	528	590	2.875
Unit 4 (Mevio - Magenta)	304	297	402	306	371	318	1.998
Unit 5 (Tarantino - Genova)	918	901	845	849	837	787	5.137
Unit 6 (Vicini - Forlì)	203	263	253	234	239	164	1.356
Unit 7 (Laudario - Bologna)	254	382	353	445	592	482	2.508
Unit 8 (Casolino - Cesena)	129	136	122	135	144	137	803
Unit 9 (Rinaldi Ceroni - Bologna)	188	179	146	114	201	186	1.014
Unit 10 (Mansi - Napoli)	1320	1357	1315	1222	1168	1059	7441
Unit 11 (Motta Jr - Napoli)	102	113	57	66	64	0	402
Unit 12 (Galli - Napoli)	146	170	121	218	213	284	1152
Unit 13 (Galletti - Messina)	340	103	84	100	135	126	888
Unit 14 (La Rotonda - Matera)	108	118	98	151	111	69	655
Total	4469	4495	4334	4512	4738	4367	26915
Total northern Italy	2453	2634	2659	2755	3.047	2829	16377
Total southern Italy	2016	1861	1675	1757	1691	1538	10538
Total Paediatric Units	2238	2258	2198	2114	2059	1926	12793
Total General Units	2231	2237	2136	2398	2679	2441	14122

in samples 11, 12 and 14. Finally, the relative incidence of the three types of adeno-tonsillar interventions varied significantly in samples 1, 9, 11, 12, 14, but was relatively homogeneous in the other samples.

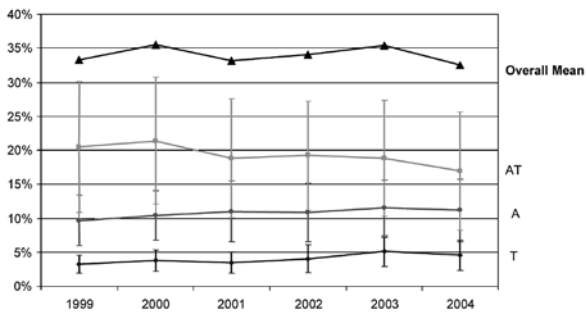
Case distribution in the Paediatric Unit samples

A lower number of adeno-tonsillar operations in sample 2, as compared to samples 5 and 10, and an almost homogeneous incidence of such operations, in the study period, was documented. A quasi-constant relationship between the types of operations considered was observed in the study period in two samples (5 and 10); this relationship was, instead, relatively variable in sample 2.

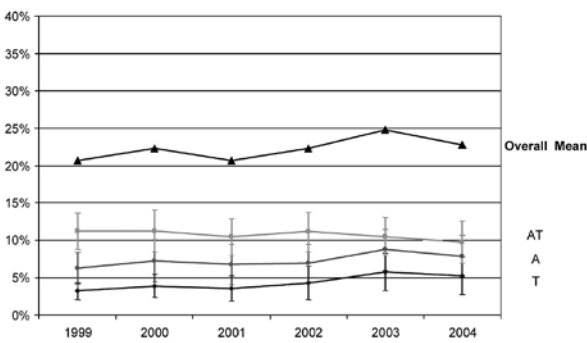
Overall distribution of the cases (Figs. 1-3)

In the study period, a homogeneous incidence of adeno-tonsillar operations was shown, as far as concerns the overall surgical activity and the overall number of adeno-

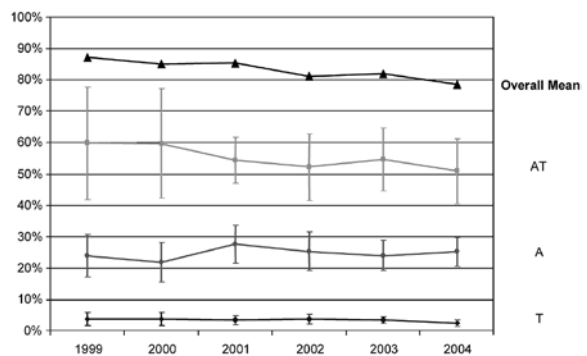
tonsillar interventions, independently of the type of units, General or Paediatric. A slightly progressive reduction in adeno-tonsillectomies, with an increase in the number of the other two interventions (adenoidectomy and tonsillectomy) was documented; this finding was more evident if General Units were considered. As far as concerns the relationships between the three operations in Paediatric and in General Units – in reference to the overall surgical activity – a higher incidence of adeno-tonsillectomy (respectively, 55% vs. 11%) and adenoidectomy (25% vs. 7%) was observed in Paediatric as compared to General Units.



A

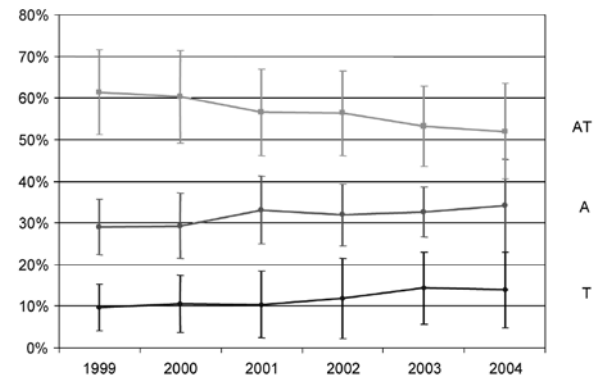


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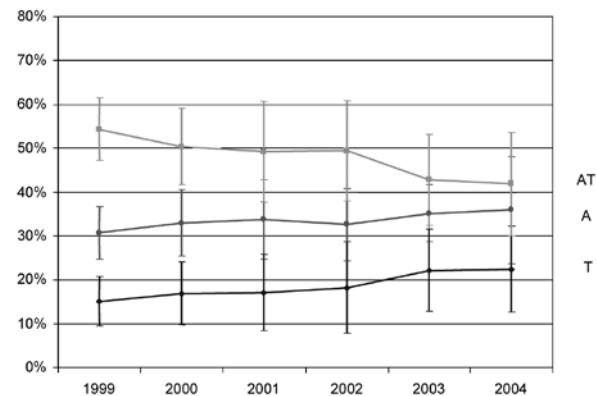


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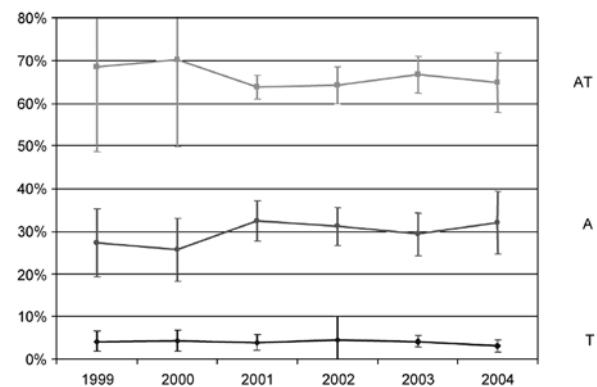
Fig. 1. Adeno-tonsillar interventions (% with SD) related to overall number of specialistic operations in the same years. A) Overall values. B) Data from General Units. C) Data from Paediatric Units. AT = Adeno-Tonsillectomy; A = Adenoidectomy; T = Tonsillectomy; PU = Paediatric Units; GU = General Units.



A

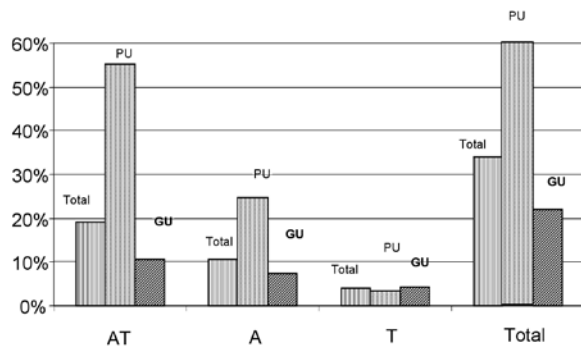


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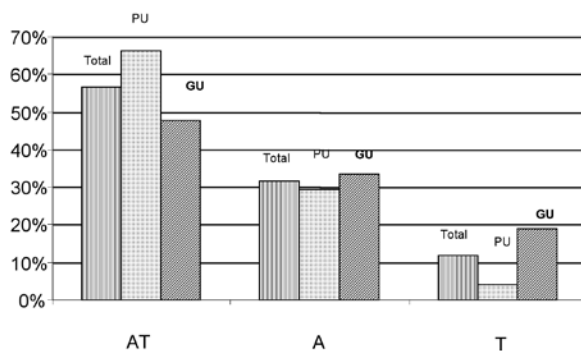


C

Fig. 2. Percentage with standard deviation of adeno-tonsillar interventions related to overall number of these operations in the same years. A) Overall values. B) Data from General Units. C) Data from Paediatric Units. AT = Adeno-Tonsillectomy; A = Adenoidectomy; T = Tonsillectomy.



A



B

Fig. 3. Incidence of adeno-tonsillar interventions in General and Paediatric Units. Data reported refer to: A) overall number of specialistic operations; B) overall number of adeno-tonsillar interventions. AT = Adeno-Tonsillectomy; A = Adenoidectomy; T = Tonsillectomy; PU = Paediatric Units; GU = General Units.

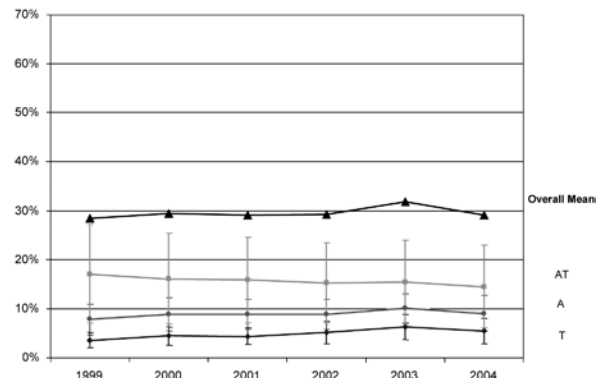
Differences between northern and southern Italy (Figs. 4-6)

The overall incidence of adeno-tonsillar interventions, with reference to the overall number of otorhinolaryngological operations, was higher in southern Italy compared to that in northern Italy. This finding concerned the two most frequently performed types of intervention, i.e., adeno-tonsillectomy and adenoidectomy. This incidence did not vary during the study period, either in northern or in southern Italy, although a progressive slight tendency to reduction of adeno-tonsillectomy was observed. In southern Italy, the percentage of adeno-tonsillectomies was higher compared to that in northern Italy.

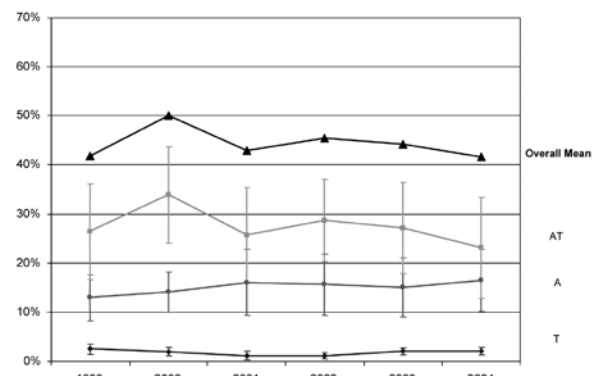
Considerations

The findings of the single units participating in the investigation are not univocal and show variations during the study period. This variability is confirmed by data in the literature⁴⁻⁶. In countries in which investigations have been carried out, on this issue, the frequency of adeno-tonsillectomy differs considerably (1.15% in Holland, 0.65 in England, 0.57 in USA), as also the surgical approach followed by otolaryngology specialists; adenoidectomy is performed together with tonsillectomy in 90% of cases in Holland, in 84% in USA, in 75% in Canada, in 32% in England.

Also the clinical guidelines related to indications for adeno-tonsillar interventions, proposed in USA, in Scotland and in Italy^{5,7,8} differ considerably between each other.



A



B

Fig. 4. Percentage of adeno-tonsillar interventions, with standard deviation, related to overall number of operations of specialistic interest performed in the recruited Units of northern and southern Italy. A) Data from northern Italy Units. B) Data from southern Italy Units. AT = Adeno-Tonsillectomy; A = Adenoidectomy; T = Tonsillectomy.

Variations in the findings, in the various study units, show that the adoption of therapeutic options can be influenced by particular clinical or environmental conditions. As a consequence, in our opinion, the decisional autonomy of specialists – as far as concerns correct clinical approach and primary deontological norms – should be guaranteed. It is worthwhile stressing that, in our investigation, during the study period, the incidence of adeno-tonsillectomy appears higher (52.7-62.6%), as compared to that of adenoidectomy (28.7-33.3%) and of tonsillectomy (9.6-14.0%), if the overall incidence of adeno-tonsillar interventions is considered (Figs. 1, 2 A). In synthesis, a homogeneous surgical approach emerges if all data from the participating units are evaluated.

The comparison between General and Paediatric Units demonstrates that the percentage of children who underwent adeno-tonsillar surgery, in relation to the overall number of operations of otolaryngology interest, is much higher in Paediatric compared to that in General Units (Fig. 1 B vs. Fig. 1 C). Nevertheless, the ratio between the three types of interventions studied does not differ substantially in the two types of samples (Fig. 2 B vs. Fig. 2 C; Fig. 3) adeno-tonsillectomies account, to a large degree, for this finding, while low frequencies, for adenoidectomies and for tonsillectomies, have been documented in both types of unit.

In the General Unit clinical series and, to a lower degree, in

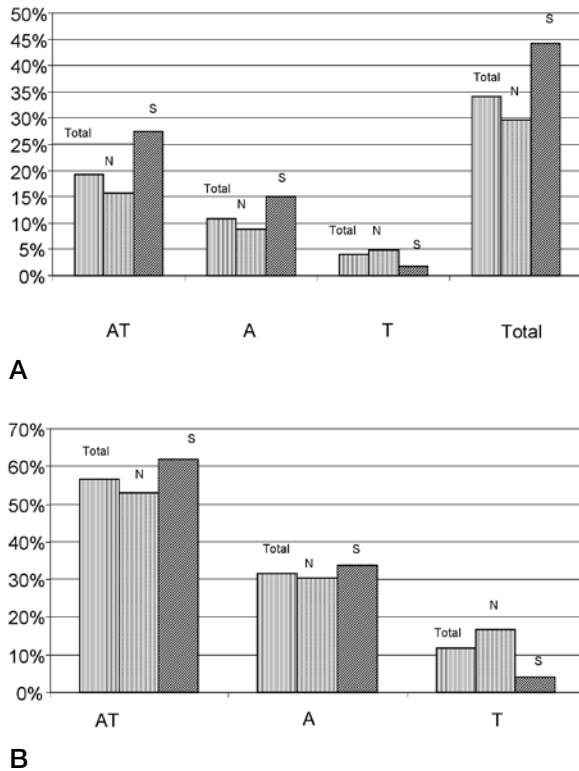


Fig. 5. Incidence of adeno-tonsillar interventions performed in recruited Units of northern and southern Italy. Data reported refer to: A) overall number of specialistic operations; B) overall number of adeno-tonsillar interventions. AT = Adeno-Tonsillectomy; A = Adenoidectomy; T = Tonsillectomy; N = northern Italy; S = southern Italy.

Paediatric Units, a slight progressive decrease in adeno-tonsillectomies has been shown with a proportional increase in adenoidectomies and tonsillectomies (Fig. 2 B vs. 2 C). In brief, in Paediatric Units, the incidence of adeno-tonsillar operations is lower compared to that in General Units; in both types of Clinical Unit, adeno-tonsillectomy is the most frequent intervention performed (Fig. 3), although the number of children who underwent this surgical procedure tends towards a progressive reduction during the study period.

As far as concerns the comparison between units in northern Italy vs. southern Italy, our study showed a higher percentage (Fig. 4 A vs. Fig. 4 B; Fig. 5) of children who underwent surgery in southern Italy, as compared to northern Italy, and an analogous higher incidence of adeno-tonsillectomies, compared to adenoidectomies and tonsillectomies, in both geographical areas (Fig. 6). Briefly, in the units in southern Italy, the percentages of adeno-tonsillar interventions are higher compared to those in northern Italy and most surgical procedures refer to adeno-tonsillectomies.

As mentioned in the introduction, a problem of particular interest has been raised by the clinical trials of Paradise et al.^{3,9} and by others, on the effectiveness of surgical treatment for acute recurrent throat infections and for otitis media^{4,10,11}.

In these studies, indication to surgical treatment is advanced when symptoms are particularly serious or when watchful waiting and medical care are not effective. On the contrary, in those cases in which feverish episodes show a low inci-

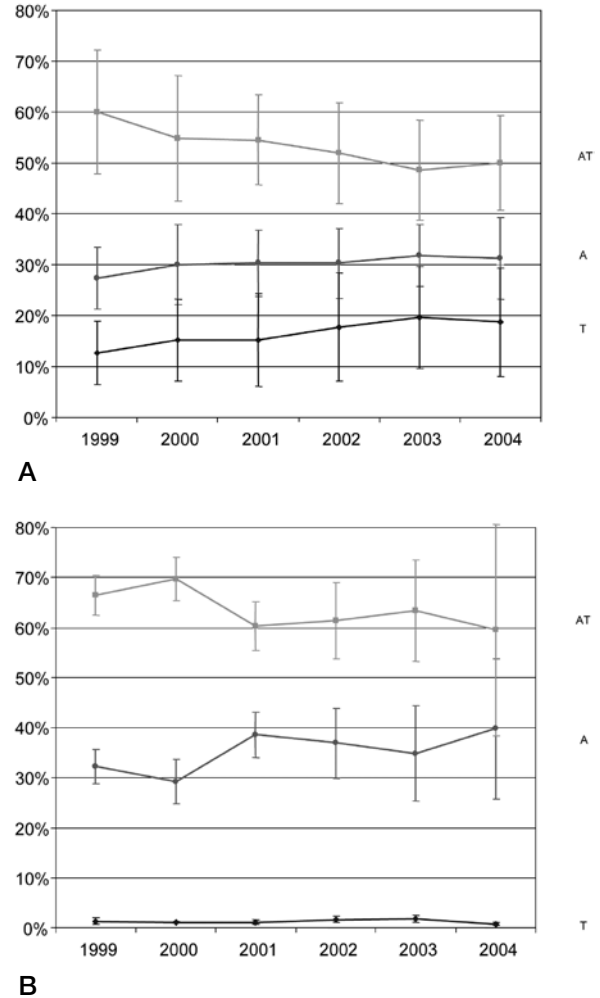


Fig. 6. Percentage of adeno-tonsillar interventions, with standard deviation, related to overall number of these operations in the same years, performed in recruited Units of northern and southern Italy. A) Data from northern Italy Units. B) Data from southern Italy Units. AT = Adeno-Tonsillectomy; A = Adenoidectomy; T = Tonsillectomy.

dence, the above-mentioned Authors express doubts concerning value of the surgery, bearing in mind the possible complications secondary to surgical procedures. In fact, in these studies, the results of surgical treatments have been evaluated exclusively taking into consideration feverish episodes and the clinical manifestations related to feverish episodes.

Findings emerging from the present investigation show that data on surgical treatments for adeno-tonsillar inflammatory status in children are substantially univocal in our Country. Nevertheless, in some units, variations in the incidence of the single type of operation have been documented during the study period. This finding can be explained, bearing in mind various environmental, social and economic factors that medical specialists cannot ignore, obviously in keeping with the deontological codes.

Therapeutic indications must take into considerations the economic conditions of patients and the characteristics of the environment in which they live. That is why we cast some doubt on the proposals of the "Guidelines", aimed to better define indications to surgical treatments on pharyngeal lymphatic structures; these documents, in fact, are formally based on rigorous – but not unexceptionable

– studies, in which elements of remarkable criticism are neglected. In this regard, we should stress that these studies were developed in other Countries and, therefore, results cannot automatically be transferred to other socio-economic and cultural conditions.

Conclusions

The present study concerned the surgical activity of 14 Otorhinolaryngological Units; 26915 children, aged between 2 and 11 years, underwent surgical interventions (adenotonsillectomy, adenoidectomy and tonsillectomy), between 1999 and 2004, for the treatment of inflammatory adenotonsillar conditions. Data related to these patients have been analyzed considering the other interventions of specialistic interest, performed in the same units. The study revealed that adenotonsillar operations account for approximately 34%

of all ENT interventions and that of the overall number of adeno-tonsillar operations, adeno-tonsillectomy accounts for 56.6%, adenoidectomy for 31.6% and tonsillectomy for 11.8%. The percentage of the three interventions considered was homogeneous, in the study period, although adeno-tonsillectomies showed a tendency towards reduction, with a corresponding increase in the other two interventions.

The findings from the single participating units are sometimes not entirely in agreement with the mean values, such as, for example, the percentages of the interventions during the study period, and also the reciprocal incidence of the three operations. With reference to reports in the literature, regarding the non-uniformity of the incidence of operations on pharyngeal lymphatic structures in other Countries, it is tempting to suggest that environmental factors, different cultural background and local health systems may influence indications and, therefore, the incidence of the interventions studied.

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