

PERIOPERATIVE USE OF ANTIBIOTICS IN COSMETIC SURGERY: A COMPARISON AMONG MEMBERS OF TWO ASSOCIATIONS

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ABSTRACT

Background: Antibiotic prophylaxis is considered mandatory in patients who are at high risk for infection. Many surgeons use antibiotic prophylaxis in clean operations as well. This study was conducted to know the practice of peri-operative use of antibiotics among members of two associations in plastic surgery.

Material & Methods: A questionnaire on use of peri-operative antibiotics was sent to 100 members and fellows each of American Academy of Facial Plastic & Reconstructive Surgery (AAFPR) and British Association of Aesthetic Plastic Surgeons (BAAPS) by e-mail in May 2006. Responses collected in 2 months were analysed. The survey questionnaire included questions regarding use of peri-operative antibiotics, when these were given, who gave it, what was the mode of administration, how was it documented and the duration of use.

Results: Out of 200 surgeons contacted, 132 responded. 78% from AAFPR and 54% from BAAPS used peri-operative antibiotics. 92% of AAFPR and 96% of BAAPS members used antibiotics on case to case basis. Only 2.6% of AAFPR and none of BAAPS members used antibiotics routinely in all cases. Members of AAFPR (71%) and BAAPS (74%) used 1st and 2nd generation cephalosporins. Majority of AAFPR (87%) and BAAPS members (79%) ordered anaesthesia staff to administer antibiotics. 67% of AAFPR and 65% of BAAPS used antibiotics just before operation. 32% from AAFPR and 35% from BAAPS used antibiotics within half an hour.

Conclusion: Use of prophylactic peri-operative antibiotics is a common practice in facial plastic surgery. The documentation and pattern varies widely among the surgeons.

Key words: Plastic Surgery, Antibiotic, Peri-operative, Prophylaxis.

INTRODUCTION

Antibiotic prophylaxis is considered mandatory in patients who are immuno-compromised or otherwise at high risk for infection. It is also indicated for patients with contaminated or infected wounds. Many surgeons provide antibiotic prophylaxis in clean operations as well.¹ Despite the growing focus on evidence-based use of peri-operative antibiotic prophylaxis to reduce surgical site infections, the administration of antibiotic prophylaxis in cosmetic surgery remains erratic and highly controversial.² There are virtually no published studies on the effectiveness of antibiotic prophylaxis. Published surveys of plastic surgeons suggest the frequent use of peri-operative antibiotics without consistency or adherence to evidence-based guidelines.

This study was conducted to know the practice of peri-operative use of antibiotics among

members of the two associations in plastic surgery.

MATERIAL AND METHODS

A questionnaire about the use of peri-operative antibiotics was sent to 100 members & fellows of American Academy of Facial Plastic & Reconstructive Surgery (AAFPR) and 100 members & fellows of British Association of Aesthetic Plastic Surgeons (BAAPS) by e-mails in the 2nd week of May 2006. The responses were collected for a period of two months up to the 2nd week of July 2006. The survey questionnaire is given in Figure-1.

RESULTS

Out of 200 surgeons contacted, 132 responses were received in the due time. (Figure-2)

Fig.1: Questionnaire about the use of peri-operative antibiotics in cosmetic surgery.

Do you routinely use pre-operative antibiotics?	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Do you routinely ask patients to take oral antibiotics?	<input type="checkbox"/> Yes	<input type="checkbox"/> No							
For which cases do you use pre-operative antibiotics?	<input type="checkbox"/> All	<input type="checkbox"/> Contaminated only	<input type="checkbox"/> Long cases	<input type="checkbox"/> Decide case to case					
When used who usually administers antibiotics?	<input type="checkbox"/> Nursing staff	<input type="checkbox"/> Anaesthesia staff	<input type="checkbox"/> Myself	<input type="checkbox"/> Team member					
When used who usually documents the record?	<input type="checkbox"/> Nursing staff	<input type="checkbox"/> Anaesthesia staff	<input type="checkbox"/> Myself	<input type="checkbox"/> Team member	<input type="checkbox"/> No documentation				
If used, when you prefer to be administered?	<input type="checkbox"/> No consistent time	<input type="checkbox"/> Just before incision	<input type="checkbox"/> Within ½ Hour	<input type="checkbox"/> Within 1 Hour	<input type="checkbox"/> Within 2 Hours				
If used, how long you usually continue it?	<input type="checkbox"/> No consistent time	<input type="checkbox"/> Single Dose Pre-Op	<input type="checkbox"/> 24 Hours Post-Op	<input type="checkbox"/> 48 Hours Post-Op	<input type="checkbox"/> Longer than 48 Hours	<input type="checkbox"/> Decide case to case			
Which antibiotics you commonly use?	<input type="checkbox"/> 1st Generation cephalosporins	<input type="checkbox"/> Amoxicillin/Clavulonate	<input type="checkbox"/> Ampicillin	<input type="checkbox"/> Amoxicillin	<input type="checkbox"/> 2nd Generation cephalosporins	<input type="checkbox"/> 3rd Generation cephalosporins	<input type="checkbox"/> Metronidazole	<input type="checkbox"/> Quinolones	<input type="checkbox"/> Others (Please mention)

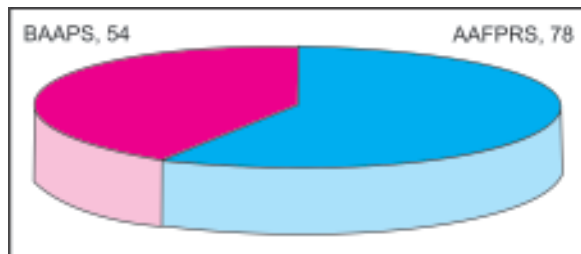


Fig. 2: Total respondents

78% from AAFPRS and 54% from BAAPS used the peri-operative antibiotics routinely. The choice of antibiotic varied widely. Majority of AAFPRS (71%) and BAAPS members (74%) used 1st and 2nd generation cephalosporins. A smaller number used 3rd generation cephalosporins, amoxicillin-clavulanate, ampicillin. No surgeon chose penicillin, quinolones, gentamycin, vancomycin, etc. (Figure-3)

Tables 1-5 show the pattern of use of antibiotics in different cases and other details.

DISCUSSION

The plastic surgery literature suggests that most plastic surgeons use peri-operative antibiotics for facial plastic surgical procedures, although there are a few supporting studies with outcome data.²⁻⁴ Perrotti et al² reported that over 90% of

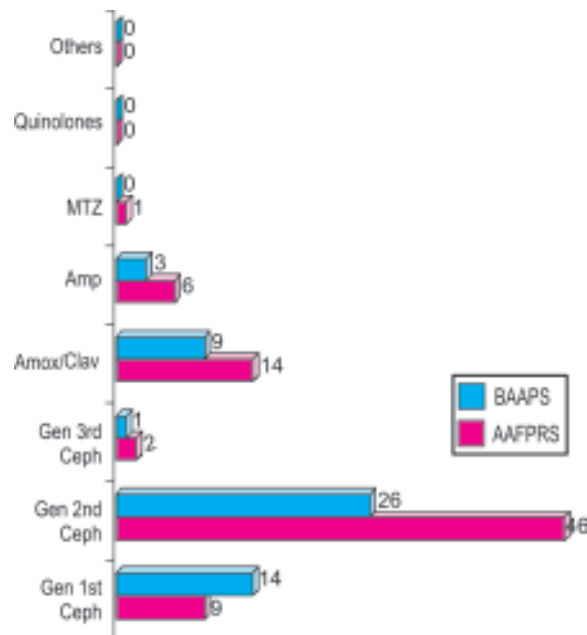


Fig. 3: Use of antibiotics.

more than 1000 responding members of AAFPRS routinely used antibiotics for procedures like facelift, rhinoplasty or blepharoplasty. Similarly Krizek et al⁵ included respondents from more than 1000 plastic surgeons in the USA and Canada. This study revealed that 50% of plastic surgeons used peri-operative antibiotics while performing rhinoplasty with implants. In the survey by

Table-1: Type of cases.

Type of case	AAFPRS (n=78)	BAAPS (n=54)
All	02 (2.6%)	Nil
Contaminated cases only	01 (1.3%)	Nil
Long cases	03 (3.8%)	02 (3.7%)
Decide case to case	72 (92.3%)	52 (96.3%)

Table-2: Who administered antibiotics.

	AAFPRS (n=78)	BAAPS (n=54)
Nursing staff	03 (3.85%)	04 (7.41%)
Anaesthesia staff	67 (85.9%)	43 (79.63%)
Myself / Team member	08 (10.26%)	07 (12.96%)

Table-3: Record of documentation.

	AAFPRS (n=78)	BAAPS (n=54)
Nursing staff	12 (15.38%)	07 (12.96%)
Anaesthesia staff	63 (80.77%)	45 (83.33%)
Myself	Nil	Nil
Team member	03 (3.85%)	02 (3.70%)
No documentation	Nil	Nil

Table-4: Time of administration.

Time	AAFPRS (n=78)	BAAPS (n=54)
No consistent time	01 (1.28%)	Nil
Just before operation	52 (66.67%)	35 (64.81%)
Within ½ hour	25 (32.05%)	19 (35.18%)
Within 1 hour	Nil	Nil
Within 2 hours	Nil	Nil

Grunebaum et al¹ 91% of the surgeons used antibiotic prophylaxis. No study to date has been published showing the comparison between the members of the two societies/associations, i.e.

Table-5: Duration of antibiotic continuation.

Duration	AAFPRS (n=78)	BAAPS (n=54)
No consistent timing	Nil	Nil
Single dose pre-op	12 (15.38%)	16 (29.63%)
24 hours post-op	05 (6.41%)	04 (7.41%)
48 hours post-op	02 (2.56%)	02 (3.70%)
Longer than 48 hours	Nil	Nil
Decide case to case	59 (75.64%)	32 (59.26%)

AAFPRS and BAAPS. In our study, 78% of AAFPRS and 54% of BAAPS members used prophylactic antibiotic. Similar to our study, Grunebaum et al¹ and Perotti et al² found that cephalosporins were the most commonly used antibiotics. The efficacy of high dose 1st generation cephalosporins as prophylaxis in head and neck surgery is well-documented.⁵

In the study by Andrews et al⁶ the effectiveness of prophylactic antibiotics in complex nasal surgery is reported. Only one previous study indicated the method for ordering, administering and documenting peri-operative antibiotic use.¹ In the study by Krizek et al,³ 63% of plastic surgeons administered antibiotics prior to surgery which is comparable to 66% in our study. According to the American Academy of Otolaryngology Head & Neck Surgery the antimicrobials must be present at therapeutic levels at the time of incision.⁷

Plastic surgery encompasses a wide variety of procedures, most of which are classified as clean or contaminated surgery by the classification system of the National Academy of Science, National Research Council.⁸ The infection rate of clean wounds is generally reported to be less than 2% in non-smokers. In spite of 2003 guidelines set forth by American Academy of Otolaryngology Head & Neck Surgery,⁷ some controversy exists in the literature regarding the use of antibiotics for clean surgery.

As already pointed by Krizek et al,³ a large series would be needed to show any benefit from prophylactic antibiotic use, as the surgical site infection is so low and the expected difference in outcomes between the control and study samples is small. In 1999 Baran et al⁹ carried out a study on 1406 patients who underwent cosmetic surgi-

cal procedure (rhinoplasty, blephoroplasty, rhytidectomy). He concluded that there was no statistically significant difference in the infection rate between the group receiving antibiotics and that receiving placebo. Similarly only 1% of 438 patients undergoing uncontaminated head and neck surgery developed infection.¹⁰

There has been much debate in literature regarding the use of antibiotics in clean nasal surgery (primarily rhinoplasty or septoplasty). In the study by Yoder et al,¹¹ it was also concluded that prophylactic antibiotics were not needed in septal surgery. A number of studies are carried out in Pakistan regarding prophylactic antibiotic use but none is carried out in patients undergoing plastic surgery.¹²⁻¹⁴

Majority of the respondents (69%) in our study decided the use of antibiotic on case to case basis as compared to 37% in the study by Grunebaum et al,¹ and only 9.8% continued for a maximum of 48 hours. Inappropriate antibiotic prophylaxis contributes to the emergence of resistant microorganisms as well as increased cost and risk to the patients.

CONCLUSION

Despite the absence of distinct guidelines and evidence-based literature to support the use of prophylactic peri-operative antibiotics, it is a common practice in facial plastic surgery. In addition, the documentation and pattern varies widely among the surgeons.

REFERENCES

1. Grunebaum LD, Reitter D. Perioperative Antibiotic usage by Facial Plastic Surgeons: National survey results and comparison with evidence-based guidelines. *Arch Facial Plast Surg* 2006; 8: 88-91.
2. Perrotti JA, Castor SA, Perez PC, Zins JE. Antibiotic use in aesthetic surgery, a national survey and literature review. *Plast Reconstr Surg* 2002; 109: 1685-93.
3. Krizek TJ, Koss N, Robson MC. The current use of antibiotic in plastic and reconstructive surgery. *Plast Reconstr Surg* 1975; 55: 21-33.
4. Kirzek TJ, Gottlieb LJ, Koss N, Robson MC. The use of prophylactic antibacterial in plastic surgery, a 1980's update. *Plast Reconstr Surg* 1985; 76: 953-63.
5. Johnson TJ, Schuller DE, Silver F. Antibiotic prophylaxis in high risk head and neck surgery: one day vs five day therapy. *Otolaryngol head neck Surg* 1986; 95: 554-7.
6. Andrews PJ, East CA, Jayaraj SM, Badia L, Panagamuwa C, Harding L. Prophylactic vs postoperative antibiotic use in complex septorhinoplasty survey, A prospective, randomized, single blind trial comparing efficacy. *Arch Facial Plast Surg* 2006; 8: 84-7.
7. American Academy of Otolaryngology-Head and neck Surgery. Infection prophylaxis in surgery: principles. In: *Antimicrobial therapy in Otolaryngology_Head and neck Surgery* available at http://antimicrobial.entlink.net/990/Aao882/me.getWEB.websections.show&AA0882_942 accessed March 2005.
8. National Academy of Sciences. National Research Council, Division of Medical Sciences, Ad Hoc committee on trauma. Postoperative wound infection: the influence of ultraviolet irradiation on the operating room and of various other factors. *Ann Surg* 1964; 160(suppl-2):1.
9. Baran CN, Sensoz O, Ulusoy MG. Prophylactic antibiotics in plastic and reconstructive surgery. *Plast Reconstr Surg* 1999; 103: 1561-66.
10. Johnson JT, Wagner RL. Infection following uncontaminated head and neck surgery. *Arch Otolaryngol Head neck Surg* 1987; 113: 368-70.
11. Yoder MG, Weimert TA. Antibiotics and topical surgical preparation solution in septal surgery. *Otolaryngol Head neck Surg* 1992; 106: 243-44.
12. Bhatti H, Aslam S, Ijaz A, Qureshi A. Role of antibiotic prophylaxis in clean surgery. *Pak Postgrad Med J* 2000; 11: 87-8.
13. Zahid MA, Azhar N, Zafar IM, Shafique M. Antibiotic prophylaxis in clean surgical cases. *J Surg* 2001; 21: 32-5.
14. Ali M, Raza A. Role of single dose antibiotic prophylaxis in clean orthopaedic surgery. *J Coll Physicians Surg Pak* 2006; 16: 45-8.

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