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Research

Contemporary Prophylactic Antibiotic Practices and Adjunct Therapies in Autologous Fat Grafting Procedures: A Survey of The Aesthetic Society Members

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Abstract

Background: Autologous fat grafting (AFG) is a widely used surgical technique that involves extracting a patient's own adipose tissue and transferring it to different areas of the body. This practice is still evolving. Guidelines for antibiotic prophylaxis and use of adjuncts in plastic surgery are currently limited, with a notable absence of standardized guidelines for AFG.

Objectives: In this survey, we assess contemporary antibiotic practices and adjuncts in AFG procedures.

Methods: A 52-question survey was emailed to 3106 active members of The Aesthetic Society. Two hundred and ninety-three responses were recorded, representing a 9% response rate.

Results: We analyzed 288 responses. The most common AFG procedures were facial (38%), gluteal (34%), and breast (27%) augmentation. Preoperative antibiotics were used by 84.0% overall, with rates of 74.3%, 88.0%, and 92.7% in face, breast, and gluteal AFG, respectively. Lipoaspirate–antibiotic mixing was reported by 19.8%, mainly during gluteal AFG (46.9%), and less so in face (2.8%) and breast (8%) AFG. Notably, 46.9% of surgeons administered prolonged prophylaxis for 72 h or more. Tranexamic acid was utilized by 39.9% of the surveyed surgeons. Platelet-rich plasma was used by 5.6%. Doppler ultrasound was incorporated by 16.7% in AFG, with 21.5% in gluteal AFG, 14% in the face, and 19% in breast procedures.

Conclusions: In this survey, we offer insights into antibiotic practices and adjunct therapies in AFG, especially intraoperative antibiotic mixing. Practices among members of The Aesthetic Society vary from guidelines. It is crucial to standardize practices and conduct further research to pave the way for evidence-based guidelines in AFG.

Level of Evidence: 5

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Published literature to date regarding surgical antibiotic prophylaxis have predominantly centered around the application of antibiotics in general surgical procedures, with limited attention given to the realm of plastic surgery.[1,2] The Surgical Care Improvement Project (SCIP), under the purview of the Centers for Medicare and Medicaid Services, identifies 6 specific operative procedures that warrant prophylactic antibiotics. To be deemed compliant, surgeons are expected to administer the appropriate antibiotics through the correct route, with precise timing (within 1 h of the incision), and to discontinue antibiotics within the specified timeframe, typically within 24 h.[3-5] This project set the gold standard for surgical prophylaxis to enhance patient safety. Aesthetic surgical procedures are exempt from these guidelines due to a lack of robust evidence supporting prophylactic antibiotics in preventing surgical-site infections (SSIs) in plastic surgery.[6] Krizek et al initially reported the trends of routine use of antibiotic prophylaxis in plastic surgery. In their initial survey of members of the American Society of Plastic Surgeons, only a minority of surgeons reported the routine use of antibiotic prophylaxis. In subsequent surveys in 1985 and 2003, the authors revealed a significant escalation in the percentage of respondents adopting antibiotic prophylaxis.[7-9] This increase amounted to an increase of 100% to 200%, transpiring "without scientific evidence demonstrating a heightened incidence of infections or improved efficacy."[9] The potential for adverse outcomes related to antibiotics, such as the emergence of drug-resistant microorganisms outweighs the benefit of prophylactic antibiotic use in low-infection-rate procedures. These benefits are justifiable only in specific patient populations and procedures with the highest risk profiles.

The absence of randomized trials and robust data addressing antibiotic prophylaxis for plastic surgery has resulted in a gap within the overarching guidelines for surgical antibiotic prophylaxis, which do not specifically address plastic surgical procedures. In light of the imperative to adopt an evidence-informed approach to antibiotic prophylaxis in plastic surgery and in the era of antibiotic resistance, the American Association of Plastic Surgeons (AAPS) developed evidence-based recommendations. These recommendations serve as a guide for the appropriate utilization of antibiotic prophylaxis in common plastic surgery procedures.[10] Although efforts have been exerted to establish prophylactic antibiotic guidelines for specific categories of plastic surgery procedures, it is noteworthy that autologous fat grafting (AFG), a technique involving the transfer of a patient's own fat for cosmetic and reconstructive purposes, remains unaddressed. Additional practices concerning antibiotics, such as the intraoperative mixing of fat grafts before injection and the short-term as well as prolonged (>72 h) postoperative use of antibiotics to prevent infection, are anecdotal trends unsupported by substantial evidence of their efficacy or security profile. Our primary objective in this study is to provide a description of prophylactic antibiotic utilization and adjuncts (defined as substances or procedures to improve outcomes) in AFG, as observed among the surveyed members of The Aesthetic Society.

METHODS

A cross-sectional survey study was conducted anonymously to assess the frequency of use of various prophylactic antibiotic practices and adjuncts during AFG procedures among members of The Aesthetic Society. In this study, we included The Aesthetic Society members who were invited to participate in the survey. The survey was distributed to a total of 3106 The Aesthetic Society members through email on February 24 with a reminder on March 15, 2023. Of 295 surveys received, exclusions were made for nonuse of fat grafting techniques ($n = 2$) or incomplete survey responses ($n = 5$). We included completed questionnaires from 288 respondents, resulting in a response rate of 9.3%.

Data collection was conducted using the Research Electronic Data Capture platform, ensuring secure and confidential data collection. A 52-question online survey (see Supplementary Material) was developed to collect the necessary data. In the survey items, we asked about the frequency of prophylactic antibiotic utilization and common practices during AFG procedures, including systemic prophylactic preoperative antibiotics, systemic prolonged postoperative antibiotics, antibiotics mixed into lipoaspirate, tranexamic acid (TXA), platelet-rich plasma (PRP), and ultrasound (US). Surgeon experience, practice type, and the distribution of reconstructive and cosmetic procedures in their practice were also recorded. Likelihood to recommend each adjunct therapy, average monthly procedure volume, years in practice, and practice type (private, community, and academic) were assessed. Descriptive statistics using excel were used to summarize the demographic characteristics of the study population and the frequencies of prophylactic antibiotic utilization and adjunct therapy utilization during AFG. Fisher's exact tests utilizing Stata (StataCorp, LLC, College Station, TX) were used to examine potential associations between surgeon years in practice, practice type, and the utilization of adjunct therapies. Statistical significance was set at $P < .05$.

RESULTS

Surgeon Profile

Table 1 summarizes the characteristics of the surveyed surgeons. The majority, accounting for 41%, had been practicing for over 25 years, with 93.1% working in private practice. The majority of surgeons performed at least 1 to 5 AFG procedures per month (51.0% 1-5 procedures/month, 45.5% 6-20, 3.5% >20 procedures/month).

Table 1. Demographics Insights: Surgeon Profiles by Years in Practice, Practice Type, and Monthly Procedure Distribution

Surgeon demographics		
	Surgeons ($n = 288$)	Percentage
Years in practice		
≤9	71	24.7
10-25	98	34.0
≥25	119	41.3
Type of practice		
Academic	12	93.1
Community	8	2.8
Private	268	4.2
Number of procedures per month		
1-5	147	51.0
6-10	81	28.1
11-15	35	12.2
16-20	15	5.2
>20	10	3.5

Table 2. Distribution of Procedures That Utilize Fat Grafting

Procedure	Surgeons ($n = 288$)
Abdominoplasty	1 (0.3%)
Breast reconstruction or augmentation	75 (26.0%)
Facial augmentation	109 (37.8%)
Gluteal augmentation	96 (33.3%)
Other	7 (2.4%)

Autologous Fat Grafting (AFG) Procedures

Table 2 provides a description of the surgical procedures in which surgeons utilize AFG. Table 3 presents their distribution based on years of experience in practice. The most common AFG procedures include facial augmentation at 38%, gluteal augmentation at 34%, and breast-related fat grafting at 27%. Contour corrections and rhinoplasty included the "other" category. Surgeons with 25+ years of experience reported primary fat grafting procedures as facial (55%), gluteal (28%), and breast (15%) AFG.

Surgeons with 9 years of experience or less reported primary fat grafting procedures as gluteal (44%), breast (37%), and facial (15%) AFG.

Surgeons with 10 to 25 years of experience reported 33% in gluteal, breast, and facial AFG, and others accounted for 3%. It is noteworthy that the difference in years of practice by procedure type was found to hold statistical significance ($P < .0001$).

Antibiotics

Preoperative Antibiotics

A substantial percentage (84.0) of AFG surgeons use preoperative antibiotics regardless of the procedure type. Preoperative antibiotics were administered at a rate of 95% in 100% of patients and 81% strongly recommend their use (Table 4). Cefazolin, favored by 89% of surgeons, is the preferred antibiotic, typically in a dosage range of 1 to 2 g.

Table 5 details preoperative antibiotic usage across various procedure types, with 74.3%, 88.0%, and 92.7% of surgeons opting for preoperative antibiotics in face, breast, and gluteal AFG, respectively.

Intraoperative Antibiotics

Among the surveyed surgeons, 19.8% integrate antibiotics into lipoaspirate during the intraoperative phase before injection. The most frequently used antibiotics are cefazolin, clindamycin, and gentamicin. Common dosages incorporated into lipoaspirate include 1 g of cefazolin, 300 to 600 g of clindamycin, and 600 mg of gentamicin. Table 5 outlines intraoperative antibiotic usage for different procedure types. Surprisingly, 46.9% of surgeons choose to mix antibiotics with lipoaspirate during gluteal AFG before injection, whereas 2.8% and 8% opt for this practice in face and breast AFG, respectively.

It is notable that among surgeons who utilize intraoperative antibiotics, a significant 71.9% are highly inclined to recommend the practice of mixing fat with antibiotics. Moreover, a noteworthy 86% employ this technique in 100% of their patients (Table 4).

When considering experience in terms of years among the surveyed surgeons, it is worth noting that 16%, 16%, and 25% of them with 25, 10 to 25, and <9 years of experience, respectively, reported the utilization of intraoperative antibiotics mixed with lipoaspirate. This disparity signifies a statistically significant distinction ($P = .0007$).

Postoperative Antibiotics

A notable 46.9% of the surveyed surgeons reported administering prolonged prophylaxis for 72 h or more following surgery. Table 5 outlines postoperative antibiotic usage for different procedure types. Of note 45.9%, 49.3%, and 46.9% in facial, breast and gluteal AFG procedures prescribed prolonged (>72 h) postoperative antibiotic

Table 3. Practice Years and a Spotlight on Most Common Procedures Involving Fat Grafting

Years in practice	Breast reconstruction or augmentation	Facial augmentation	Gluteal augmentation	Abdominoplasty	Other
≤9	19 (26.8%)	28 (39.4%)	22 (31.0%)	0 (0%)	2 (2.8%)
10-25	23 (23.5%)	44 (44.9%)	30 (30.6%)	0 (0%)	1 (1.0%)
≥25	33 (27.7%)	37 (31.1%)	44 (37.0%)	1 (100%)	4 (3.4%)

Table 4. Antibiotic Usage Patterns and Surgeon Recommendations

Antibiotic usage: preop to postop			
	Yes	No	
Preoperative antibiotic usage	242 (84.0%)	46 (16%)	
Intraoperative antibiotic usage	57 (19.8%)	231 (80.2%)	
Postoperative antibiotic usage (>72 h)	135 (46.9%)	153 (53.1%)	
Likelihood of recommending antibiotic usage			
	Preoperative antibiotic usage ($n = 242$)	Intraoperative antibiotic usage ($n = 57$)	Postoperative antibiotic usage (>72 h) ($n = 135$)
Highly likely	196 (81.0%)	41 (71.9%)	100 (73.5%)
Likely	28 (11.6%)	15 (26.3%)	20 (14.7%)
Neutral	17 (7.0%)	0 (0.0%)	13 (9.6%)
Unlikely	0 (0.0%)	0 (0.0%)	2 (1.5%)
Highly unlikely	1 (0.4%)	1 (1.8%)	1 (0.7%)

Table 5. Intraoperative, Postop by Procedure Type

	Preoperative Antibiotic use		Intraoperative Antibiotic use		Postoperative Antibiotic use	
	Yes	No	Yes	No	Yes	No
Abdominal ($n = 1$)	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
Breast ($n = 75$)	66 (88.0%)	9 (12.0%)	6 (8.0%)	69 (92.0%)	37 (49.3%)	38 (50.7%)
Facial ($n = 109$)	81 (74.3%)	28 (25.7%)	3 (2.8%)	106 (97.2%)	50 (45.9%)	59 (54.1%)
Gluteal ($n = 96$)	89 (92.7%)	7 (7.3%)	45 (46.9%)	51 (53.1%)	45 (46.9%)	51 (53.1%)
Other ($n = 7$)	5 (71.4%)	2 (28.6%)	2 (28.6%)	5 (71.4%)	2 (28.6%)	5 (71.4%)

courses. The commonly selected postoperative antibiotics included Cefazolin and cephalexin. Other antibiotics reported included amoxicillin/clavulanate, cefadroxil, trimethoprim/sulfamethoxazole, doxycycline, moxifloxacin, and levofloxacin. Of surgeons administering prolonged antibiotics, 85% use them in 100% of their patients and 73% are highly likely to recommend them for fat grafting procedures (Table 4).

In terms of experience, 37%, 50%, and 61% of surgeons with over 25, 10 to 25, and <9 years of experience, respectively, utilized postoperative antibiotics. This difference carries statistical significance ($P = .0056$).

Tranexamic Acid

Among the surveyed surgeons, a substantial 39.9% utilize TXA in AFG procedures (Table 6). Within this cohort, 59% consistently employ TXA in 100% of their AFG patients, and an impressive 60% express a strong likelihood of recommending TXA for such procedures. With regard to the

Table 6. Patterns of Adjuncts in Fat Grafting by Procedural Type

Adjuncts for fat graft procedures						
	TXA usage		Ultrasound usage		PRP usage	
	Yes	No	Yes	No	Yes	No
Abdominoplasty ($n = 1$)	0 (0.0%)	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	1 (100.0%)
Breast reconstruction or augmentation ($n = 75$)	28 (37.3%)	47 (62.7%)	14 (18.7%)	61 (81.3%)	3 (4.0%)	72 (96.0%)
Facial augmentation ($n = 109$)	45 (41.3%)	64 (58.7%)	15 (13.8%)	94 (86.2%)	6 (5.5%)	103 (94.5%)
Gluteal ($n = 96$)	38 (39.6%)	58 (60.4%)	17 (17.7%)	79 (82.3%)	7 (7.3%)	89 (92.7%)
Other ($n = 7$)	4 (57.1%)	3 (42.9%)	2 (28.6%)	5 (71.4%)	0 (0.0%)	7 (100.0%)

methods of administration, the breakdown reveals that 67% of respondents administer TXA locally in a tumescent solution, 19% opt for intravenous TXA, and only 2% choose oral TXA administration.

When comparing years of practice, 54% of surgeons with 9 or fewer years use TXA, whereas 41% of those with 10 to 25 years and 31% with over 25 years utilize TXA. Importantly, these distinctions are statistically significant ($P = .0092$).

Platelet-Rich Plasma

Only a small fraction, specifically 5.6% of the surveyed surgeons, reported using PRP as an adjunct therapy in AFG (Table 6). Among these surgeons, 19% consistently incorporated PRP into 100% of their patients, and a significant 38% expressed a strong inclination to highly recommend its use.

The dosing of PRP showed significant variability, including mixing 5 to 10 cc with lipoaspirate, employing a 1:1 ratio, and blending 80% fat with 20% PRP.

Doppler Ultrasound

Out of 288 surveyed surgeons, 16.7% incorporated Doppler US (DUS) in AFG procedures for fat graft placement (Table 6). Among these surgeons, 52% consistently used DUS in 100% of their patients, and 56% expressed a strong inclination to recommend US-guided fat graft placement. When categorizing by procedure type, 21.5% of surgeons performing gluteal AFG reported using DUS as an adjunct, whereas 14% and 19% used it for face and breast procedures, respectively.

No statistically significant differences in DUS utilization for AFG emerged based on years of experience.

DISCUSSION

The current literature suffers from a notable void because of the lack of comprehensive randomized trials that investigate antibiotic prophylaxis and adjuncts for enhancing AFG outcomes and preventing complications.

Infection Rate

Various articles have reported overall infection rates in fat grafting procedures. A retrospective analysis by Smith et al highlighted the absence of current national guidelines providing advice on prophylactic antibiotics in fat grafting. They examined a prospectively collected database of 40 patients, encompassing a wide range of antibiotic regimens, including no antibiotics, no induction prophylaxis, and oral postoperative use ranging from 3 to 7 days, and only induction prophylaxis antibiotics. They found that none of the 40 patients developed graft-site infections.[11] In a study by Nicareta et al involving 351 consecutive patients undergoing autologous gluteal fat grafting, a 1% infection rate in the grafted area was documented.[12] In another fat grafting study involving gluteal augmentation of 916 patients, Everett et al cited 5 patients (0.5% infection rate) requiring intravenous antibiotics for cellulitis, with no systemic infection reported.[13]

Similarly, in a systematic review detailing complications of breast fat grafting, the authors observed a 0.6% (95% CI: 0.3%-1%) infection rate in 2073 patients, with the authors of one study describing subsequent treatment with oral antibiotics.[14] In yet another breast fat grafting experience with 880 patients over 10 years, a 0.7% infection rate at the injection site and a 0.1% infection rate at a local infection site were reported.[15] In a systematic review and meta-analysis, Groen et al reported a 0.9% infection rate (95% CI: 0.5-1.2) for AFG to the breast treated with oral antibiotics and conservative measures.[16]

Another meta-analysis by Groen et al of AFG for facial rejuvenation, involving 728 patients across 6 studies, found a 1% infection rate (95% CI: 0.0-4.0).[17] LeRoy et al reported 11 infections in 6166 consecutive facelifts, highlighting the low infection rates in facial plastic surgery, whereas Pitanguy and Machado noted a 0.05% infection rate in 8788 facelifts over 52 years.[18,19]

Due to the reports in the literature of low infection rates and the frequent use of conservative antibiotic therapy in treatment, there is uncertainty on the necessity of prophylactic

antibiotics in AFG surgery, considering cost-effectiveness, antimicrobial resistance, patient outcomes, and safety.

Preoperative Antibiotic Use

Preoperative antibiotic prophylaxis has remained a cornerstone in the prevention of SSIs, which stand as the most prevalent complications following surgical procedures. Since the early 2000s, the Surgical Infection Prevention and Surgical Care Improvement Project has rigorously examined SSIs, thereby introducing guidelines aimed at ameliorating the incidence of this frequent complication. These guidelines, outlined by the project, encompass the administration of prophylactic antibiotics specifically chosen for the 6 described procedures according to current national recommendations. The administration of the antibiotic is mandated within 1 h before incision, and its discontinuation within 24 h is stipulated in select procedures.[3-5]

The lack of extensive evidence in prophylactic antibiotic use in plastic surgery has created a gap in the guidelines. The AAPS responded by developing evidence-based recommendations for antibiotic prophylaxis in common plastic surgeries. AAPS recommends preoperative antibiotics for specific nonclean surgeries such as those involving the head and neck, hand, upper limb, skin, and clean breast surgery but not for clean surgery in other areas. Notably, 74% of facial AFG and 92.7% of gluteal AFG surgeons use preoperative antibiotics without clear guidelines, despite low infection rates, as discussed previously. Although there is no evidence supporting systemic preoperative antibiotics in gluteal AFG, the rationale might stem from its proximity to the anal sphincter, which is considered a potentially contaminated area. However, it is important to note that this practice lacks robust supporting data, and according to AAPS guidelines, it is still classified as a clean surgery. Additionally, 88% of surgeons adhere to AAPS guidelines for clean breast surgery, but 12% do not, despite evidence from the literature.

Due to the limited presence of robust randomized control trials for AFG and its low infection rates, the use of systemic preoperative prophylactic antibiotics may lack evidence-based support. However, it is important to note that there is no strong data refuting the practice of preoperative systemic prophylaxis for plastic surgery procedures, including AFG.

The favored choice of antibiotic throughout the survey was cefazolin, administered at dosages ranging from 1 to 2 g, aligning with the specific guidelines.

In total, 84% of surgeons used preoperative prophylactic antibiotics, and 92.6% were likely or highly likely to recommend their use. This aligns with a previous ASPS survey on SSI prophylaxis in plastic surgery, which found that 84% of respondents used prophylactic antibiotics in over 50% of patients, with 75% using them in every patient.[20]

Intraoperative Antibiotics

An intriguing aspect of antibiotic practices in AFG is the intraoperative mixing of antibiotics with lipoaspirate. Surprisingly, 19.8% of surgeons use this approach, with the most common antibiotics being cefazolin (41%), clindamycin (47%), and gentamicin (26%). This practice varies significantly by procedure type, with 46.9% of gluteal AFG surgeons employing it, compared with only 3% in facial AFG and 8% in breast AFG. Despite the remarkably low infection rates in fat grafting cases (0.6%-1.1%),[11-15] 71% of those using intraoperative antibiotics express a strong inclination, and 86% use it in 100% of patients. Given the lack of evidence supporting antibiotic prophylaxis in AFG, particularly lipoaspirate–antibiotic mixing, it is surprising to identify 19.8% of surgeons practicing it in the context of gluteal AFG. Further research is needed to evaluate the safety and outcomes of this practice, and nationwide samples should be examined to assess its prevalence. To the best of our knowledge, this is the first report of this practice.

Postoperative Antibiotics

Additional trends identified in our survey encompass the utilization of postoperative antibiotics. Notably, 46.9% of surgeons reported employing prolonged prophylaxis lasting 72 h or more, with cephalosporins being the preferred choice. Among these surgeons, 85.2% consistently administered prolonged antibiotics in 100% of their patients, and 72.8% expressed a high likelihood of recommending this practice, particularly among younger surgeons who show a greater inclination toward its adoption.

As previously mentioned, this practice comes under scrutiny because of the relatively low incidence of infections in fat grafting procedures. Furthermore, existing literature has delved into the exploration of prolonged antibiotic therapy. For instance, Morandi et al conducted a study involving 340 patients undergoing breast fat grafting, wherein all patients received perioperative antibiotic prophylaxis. Among them, 33% received only a single shot of antibiotics, whereas the remaining 66% were subjected to a prolonged antibiotic regimen. Interestingly, a mere 2.4% of patients experienced a local infection at the graft site, necessitating an extension of antibiotic therapy. The researchers concluded that the complication rate for breast fat grafting remains notably low and is not tied to the employed antibiotic protocol. Their study indicated that prophylactic antibiotics beyond a single shot do not enhance wound healing, reduce infection rates, prevent oil cyst formation, or decrease graft resorption rates, potentially rendering them unnecessary.[21]

Similarly, the authors of a substantial database study involving 7456 records of breast fat grafting arrived at a similar conclusion. They determined that postoperative antibiotics of any duration or class did not exhibit a

protective association against infection or overall likelihood of complication. Conversely, perioperative antibiotics demonstrated a significant protective association against the likelihood of postoperative infection, aligning with current infection prevention guidelines by the AAPS and SCIP.[22]

The prudent utilization of antibiotics is essential to counteract the escalating issue of antimicrobial resistance across the medical field. However, the trends in antibiotic use highlighted by our survey reveal practice patterns that deviate from current guidelines, which are further hampered by limited evidence supporting their efficacy in SSI prevention and more so in the context of AFG in which no large-scale, randomized control trials have explored its safety profile or outcomes.

Tranexamic Acid

In our survey, we found that 39.9% of surgeons use TXA in fat grafting, with 59.1% using it in 100% of their patients and 60% highly recommending it. This adoption is consistent across procedures (facial, breast, and gluteal AFG) at 41%, 37%, and 40%, respectively. Dosages and administration route responses varied from 500 to 1000 mg IV or in the tumescent wetting solution, reflecting practice heterogeneity.

Recent systematic reviews on TXA in plastic surgery have demonstrated its efficacy in reducing blood loss without increasing thrombosis risk.[23-25] TXA has also shown promise in minimizing blood loss and hematoma formation in breast plastic surgery, with benefits from both topical and intravenous applications.[26] Additionally, a retrospective review involving 60 patients showed reduced bruising at donor sites with locally infiltrated TXA.[27] Our group's systematic review further supports TXA's blood-saving effects during liposuction and fat grafting.[28]

Although initial safety and outcome examinations of TXA exist, its optimal dosing, administration route, and effects need further elucidation. TXA maintains a safe profile as an adjunct during fat harvesting, aiding in blood loss reduction for purer fat collection. However, research is needed to explore its impact on fat viability and retention, and guidelines should be developed to address its indications, administration, and overall outcomes adequately.

Platelet-Rich Plasma

In our survey, 5.6% of plastic surgeons utilize PRP, but only 18.8% of them incorporate it universally, whereas 37.5% strongly advocate its usage, particularly among older surgeons. Dosing practices exhibit variation, encompassing reports of 5 to 10 cc, a 1-to-1 ratio, or 80% fat to 20% PRP in our survey. PRP, characterized by its heightened platelet concentration in concentrated blood plasma, boasts a wealth of growth factors. PRP stimulates endothelial cell proliferation, angiogenesis, and the development of adipocyte progenitor cells. Vyas et al's systematic review underscores PRP's positive impact on fat graft survival.[29] Similarly, a meta-analysis by Wu et al reinforces these findings, demonstrating that combining PRP with fat grafts leads to higher fat survival rates (ranging from 24.1% to 89.2%) compared with fat grafts used alone (20.5%-54.8%).[30] The dosing variability in our survey responses aligns with recent systematic reviews showcasing diverse fat preparation and PRP techniques in practice.[31] Gentile et al's research in breast fat grafting, combining 0.5 mL of PRP with 1 mL of centrifuged fat tissue, reveals augmented fat content in the PRP group.[32] Additionally, Modarressi endorse a 20% PRP volume to enhance fat viability.[33] Although some evidence supports PRP in fat grafting, no definitive data or guidelines exist endorsing its safety or improved outcomes. It is surprising to see PRP adopted in our survey without clear positive evidence. As guidelines and research progress, PRP's role in fat grafting may evolve.

Ultrasound

In our survey, we reveal that only 16.7% of surgeons use DUS, and among them, 35% utilize it for gluteal AFG, representing 21.5% of all surveyed surgeons who perform gluteal AFG. Only 56.2% of surgeons using US would strongly recommend its practice and half use it in 50% of patients. Interestingly, younger surgeons seem to be embracing US more readily. The most recent practice advisory on gluteal fat grafting emphasizes the use of US-guided techniques.[34] Further evidence supporting the implementation of US can be found in a retrospective case–control study by Ge et al, in which significant improvements were observed in the group using DUS guided lipofilling. This included a notable increase in the volume of fat administered.[35] Cansancao et al conducted a study on real-time US-assisted gluteal fat grafting, highlighting its reliability in ensuring precise cannula placement and fat injection, while reducing the risk of major complications.[36] As of July 20, 2023, Florida has implemented bill HB 1471, which requires the use of US guidance for gluteal fat grafting procedures to enhance patient safety.[28] The survey results present a striking contrast between the recommendations for US use particularly in gluteal AFG and its actual implementation in practice. Potential reasons could include the cost of purchasing US equipment, increased surgical time, the need for constant assistance, and the learning curve associated with its usage, as highlighted by Cansancao et al.[36]

Limitations

Although in this survey, we have provided valuable insights into current practices, it is important to acknowledge its limitations, including the self-reported nature of the survey and the restricted sample size that may lead to selection bias. To address these limitations, future research should aim to

conduct larger prospective studies involving a more diverse population of aesthetic surgeons and regional data. Additionally, long-term outcomes, complications, and patient satisfaction related to antibiotic prophylaxis and adjunct therapies in AFG procedures should be investigated to further enhance our understanding of these practices.

CONCLUSIONS

In this survey, we provide valuable insights into current prophylactic antibiotic practices and adjunct therapies used in AFG procedures, with a particular focus on the trend of intraoperative antibiotic mixing with lipoaspirate. General prophylactic antibiotic practices and adjunct therapies within The Aesthetic Society membership show heterogeneity with current guidelines. Standardizing these practices and conducting additional robust research are crucial steps to ensure optimal clinical outcomes and patient safety, ultimately leading to the establishment of evidence-based guidelines in AFG.

Supplemental Material

This article contains supplemental material located online at www.asjopenforum.com.

Disclosures

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