Plastic Surgery as a Problem-solving Surgery

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Abstract

Objective: Plastic surgery is not confined to a specific organ system. As it can be performed along with other specialties, it is a custom to ask for the opinion of plastic surgeons in various situations. Under academic and medicolegal restrictions, professional opinions are demanded via "consultations."

Material and Methods: In this study, consultations in 2014 asked from a plastic surgery clinic of an education and research hospital are retrospectively reviewed.

Results: During 2014, from a total of 46,277 inpatients, 1124 consultations to the plastic surgery clinic were documented. The total number of patients who consulted was 438.

Conclusion: In light of this situation, we believe that the curriculum of interclinical rotation programs should be re-evaluated and re-shaped.

Keywords: Plastic surgery, consultation, clinical practice

INTRODUCTION

The scope of Plastic, Reconstructive, and Aesthetic Surgery (PRAS), by definition, is not limited to a particular organ system. This positions PRAS separately from the other medical branches. In the absence of a distinctive definition, its scope lends itself to an extended field of practice. Its multidisciplinary approach, however, necessitates the opinion of the plastic surgeon across diverse and hard-to-categorize areas. Based on academic and medico-legal sanctions, such opinion is provided under the definition of "consultation."

In theory, consultation is a request by one physician of another for assistance in the diagnosis or treatment of a patient, and it anticipates the personal opinion of the latter in case of a complex situation. This definition can be expanded to cover purpose-oriented requests made on deontological principles in writing between professionals for resolving a challenging situation encountered in the treatment or palliation of patients.

In the scope of our study, we scrutinized the consultation requests received by a plastic, reconstructive, and esthetic surgery clinic in a state training and research hospital within a specific time period as well as analyzed the necessity of the reviewed consultations and the distribution of their impact on the workload of the PRAS clinic based on the number of specialists and compared the findings to idealized data, as given in workforce reports.

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MATERIAL AND METHODS

Data on inpatient consultation requests received from January 1, 2014 to December 31, 2014 in the PRAS clinic were retrospectively retrieved from the hospital’s digital information management system. The study was designed in line with the guidelines stated in the last revised 2013 edition of the Declaration of Helsinki. Requests by the plastic surgery clinic and emergency requests addressed to plastic surgery were excluded from the study. Requests that did not state a reason or those to which our clinic did not respond because of various reasons as well as requests “erroneously” delivered to our clinic because of technical issues were also excluded.

Furthermore, the numbers of new and follow-up patients examined in the PRAS clinic in 2014 were retrieved from the same information system. These data were used for benchmarking with the number of consultations.

The data on the number of hospitalized patients, mean hospitalization times, and number of beds were obtained from the Public Hospitals Statistics 2014 Annual published by the Turkish Ministry of Health Public Hospitals Department (TKHK).

Statistical Analysis

Consultation requests were classified and listed by gender, nationality, requesting clinic, response given, and number of consultations requested for the same patient using MS Excel for MAC (Microsoft Corporation, Washington, USA). Statistical analyses of the findings were performed using Statistical Package for the Social Sciences 21.0 (SPSS IBM SPSS Corp. Armonk, NY, USA). The study data were assessed by descriptive statistical analysis (frequency, percentage, average, standard deviation).

The prevalence of PRAS specialists per 100,000 persons in both Turkey and Istanbul and the prevalence of PRAS specialists per the number of patients applying to public hospitals in Istanbul were calculated in light of the current literature. The number of patients who were admitted to our hospital and the number of PRAS consultations requested for these patients were compared with the projected overall patient population. The figures were compared using a difference ratio test. The results were assessed within a confidence interval of 95% and a significance level of p<0.05.

RESULTS

Data from the Hospital Digital Information Management System

Our PRAS clinic received and responded to 1,124 inpatient consultation requests between the dates of January 1 and December 31, 2014. While these requests involved 438 patients in total, consultations were requested by separate clinics.

<table>
<thead>
<tr>
<th>Table I. Consultation patients</th>
<th>Frequency (n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stayed in one ward</td>
<td>424</td>
<td>96.8</td>
</tr>
<tr>
<td>Stayed in multiple wards</td>
<td>14</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>438</td>
<td>100.0</td>
</tr>
<tr>
<td>Expatriate</td>
<td>14</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Figure 1. Gender distribution of consultation patients

Consultation Requests

<table>
<thead>
<tr>
<th>Medical Condition</th>
<th>Frequency (n)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laceration</td>
<td>6</td>
<td>1.4%</td>
</tr>
<tr>
<td>Congenital deformities (CLP)</td>
<td>7</td>
<td>1.6%</td>
</tr>
<tr>
<td>Meningomyeleocele</td>
<td>10</td>
<td>2.3%</td>
</tr>
<tr>
<td>Hemostasis</td>
<td>10</td>
<td>2.3%</td>
</tr>
<tr>
<td>Hand injury</td>
<td>11</td>
<td>2.5%</td>
</tr>
<tr>
<td>Necrotizing fascitis</td>
<td>11</td>
<td>2.7%</td>
</tr>
<tr>
<td>Burn-Fasciotomy requirement</td>
<td>15</td>
<td>3.4%</td>
</tr>
<tr>
<td>Mass-Lesion</td>
<td>15</td>
<td>3.4%</td>
</tr>
<tr>
<td>Diabetic foot ulcer</td>
<td>26</td>
<td>5.9%</td>
</tr>
<tr>
<td>Maxillofacial fracture</td>
<td>27</td>
<td>6.2%</td>
</tr>
<tr>
<td>Compartment Syndrome</td>
<td>29</td>
<td>6.6%</td>
</tr>
<tr>
<td>Pressure ulcer</td>
<td>105</td>
<td>24%</td>
</tr>
<tr>
<td>Tissue defect</td>
<td>165</td>
<td>37.7%</td>
</tr>
</tbody>
</table>

Figure 2. Etiological analysis of consultation patients
ics within the same time frame for 14 patients (Table I). The number of consultations requested per patient was 2.56.

A review with respect to the demographic characteristics of the patients found that 188 (42.9%) were female and 250 (57.1%) were male. Furthermore, 14 (3.2%) were expatriates (Figure 1).

Tissue defects were found to have the highest rate (37.7%) among the consulted diagnoses, followed by pressure sores (24%) and compartment syndrome (6.6%) (Figure 2). The first three clinics that requested consultations were the Internal Medicine, Pediatrics, and Orthopedics clinics (Figure 3).

The responses given to the requests were grouped under three headings for ease of data entry: “dressing,” “operation,” and “advice.” Dressing was described as dressing of the wound and bedside debridement, and the use of a synthetic sheet as wound dressing. Operation was described as the decision and preparation for surgery. Advice was described as the recommendations, referrals, and other clinical suggestions. When the responses given to the consultation requests were reviewed under these headings, 581 (52%) fell under advice, 393 (35%) under dressing, and 150 (13%) under operation (Figure 4).

In this period, a total of 17,132 patients were examined in our PRAS clinic, 13,605 of which were first-time patients and 3,527 were follow-up patients.

Follow-up and first-time patients examined in the outpatient clinic were treated as one group (13,605+3,527=17,132) in order to be able to compare the data related to the multiple consultations for one patient and the total outpatient clinic data.

**Turkish Ministry of Health Public Hospitals Data**

According to the Ministry’s database, there were 670 beds in our hospital. The number of inpatients treated in our hospital from January 1 to December 31, 2014 was 46,227. The mean hospitalization time per patient was 4.8 days.

In total, 1,814,717 outpatients were examined in the different clinics of our training and research hospital in the specified period.

When these two data groups were reviewed comparatively, the PRAS department was consulted 1,124 times for 438 patients out of the total of 46,227 inpatients. The proportion of the number of patients for whom consultation was requested from the PRAS department to the total number of inpatients was 0.94% (432×100/46,227). Given the mean hospitalization time of 4.8 days of these inpatients, the average number of consultations requested from the PRAS department per patient was 2.56 (1,124/438).

There were five working PRAS specialists in our clinic during the given time period. The number of consultations per specialist was 224.8 (1,124/5) and the number of patients per specialist was 87.6 (438/5).

Of the 1,814,717 patients examined in the outpatient clinics of our hospital, 17,132 were examined in the PRAS clinic. The percentage of the 17,132 patients who were examined in our PRAS clinic among the total 1,814,717 patients who were examined in all of the outpatient clinics of our hospital in 2014 was 0.94% (17,132×100/1,814,717).

**DISCUSSION**

This retrospective, cross-sectional, and descriptive study shows the consultations requested of the PRAS department for all inpatients in one year in a training and research hospital in Turkey. The data shows that consultation is requested...
that 45,890,059 patients applied to public hospital clinics in these figures based on patient population prevalence shows 1,124 consultations were requested for 438 patients (0.94%) patients were examined in the PRAS outpatient clinic. In total, applied to our hospital clinics between January 1 and December

According to the 2014 data published by the Ministry of Health (TKHK), 46,227 out of the 1,814,717 people that applied to our hospital (5/1,814,717). Comparison of these two figures shows that the number of consulted patients was 1.57 times more than the number of patients evaluated in the clinic (2,431/944). This ratio indicates that the number of consultations requested for inpatients was significantly higher than the number of patients examined in the clinic (p=0.017<0.05). From a different perspective, the workload one patient brings to the PRAS specialists as of the moment they are admitted to the hospital following a clinical evaluation is 257%.

According to the 2010 Health Education and Healthcare Workforce Report, PRAS specialists constitute 0.13% of all the healthcare specialists in Turkey. While defined as a “minority” group overall, asking PRAS specialists to evaluate one in every 106 patients admitted to the hospital falls far from the definition of “minority” in terms of workload.

This picture does not correspond to the definition of consultation as a documented request by one physician of another for taking the personal viewpoint of the latter for the diagnosis or treatment of a patient.1

Based on a review of the requesting clinics, internal medicine (20.5%), pediatrics (14.6%), orthopedics (13.7%), infectious diseases (11.2%), and the intensive care unit (9.1%) are the top five departments with a share of 69.1%. Surprisingly, only one of these five is seen to be a surgical department. Considering that consultation requests for 303 (69.1%) out of 438 patients came from these five departments, it can be deduced that a majority of the cases concluded with either dressing applications or suggestions were requested by these departments.

The tendency to avoid wound assessment and dressing applications—part of the basic missions of primary healthcare services—during residency in non-surgical departments manifests itself in these figures. We believe this to be the case also in other hospitals and postulate that similar studies in different hospitals would reveal similar outcomes. Getting the concerned departments to perform wound treatment procedures via consultation requests can be a way of avoiding possible medico-legal controversies in the long run. This viewpoint leads to the displeasing thought that the practice of plastic surgery, intentionally or otherwise, is being equated to wound dressing.

According to the study data, a total of 1,124 consultation requests were received for 438 patients in 2014. According to the TKHK statistics’ service assessment criteria for the given year, the mean stay of patients in our hospital was 4.8 days. A different interpretation of the data shows that 2.5 (1,124/438=2.56) consultations per patient were requested of the PRAS department during their 4.8-day stay. A review of the content of re-

of the PRAS department for one in every 106 inpatients. A review of the patients for whom consultation was requested showed that two requests were made for each patient during a mean stay of about five days.

Emergency requests and requests from outpatient clinics were not included in the study. This is because consultations requested by outpatient clinics are not processed via the automated system but are noted in handwriting with no systematic record. Emergency consultations are requested when urgent surgical intervention is needed and therefore do not fall under the scope of this study. Our department’s responses to inpatient consultation requests were examined in three groups. The total number of responded to consultations were 1,124. Because the consultation content could not be homogenized (because of the wording used in requests and/or because of incompletely filled-out forms) we preferred to review the responses provided in the consultations. These responses were grouped under the headings of dressing application, surgical decision, and other advice. Among these three groups, advice was the major outcome of the consultation, with a rate of 52% (n=531). This was followed by dressing applications, with a rate of 35% (n=393). Surgical decisions constituted 13% (n=150) of the total responses given to the consultation requests (Figure 4). Furthermore, in some consultations recorded as dressing application, the procedure was delegated to another clinic following our recommendations. This data shows that dressing applications take up a significant portion of time in the work of PRAS doctors.

In a recent study, based on 2012 data, Saçak et al.1 calculated a figure of 1.05 PRAS specialists per 100,000 persons in Turkey. The same study reported 1.52/100,000 for all of Istanbul, including our hospital. Compared to the data from EU countries, Turkey ranks around the middle.1 A review of these figures based on patient population prevalence shows that 45,890,059 patients applied to public hospital clinics in Istanbul from January 1 to December 31, 2014.2 Saçak et al.3 indicated there were 211 active plastic surgery specialists in Istanbul, of whom 127 were in private practice. If, most optimistically, we assume that all 94 PRAS specialists in the public sector worked throughout the entire year, there would be 0.2 PRAS specialists for every 100,000 patients that applied to public hospitals. In proportion to the number of PRAS specialists who actually worked during this period, this figure would be 0.27 PRAS specialists per 100,000 patients that applied to our hospital (5/1,814,717). Comparison of these two rates shows that the specialist-to-patient ratio in our hospital is significantly higher than the average found across Istanbul (p=0.0104<0.05).

According to the 2014 data published by the Ministry of Health (TKHK), 46,227 out of the 1,814,717 people that applied to our hospital clinics between January 1 and December 31 were treated as inpatients. In the same timeframe, 17,132 patients were examined in the PRAS outpatient clinic. In total, 1,124 consultations were requested for 438 patients (0.94%) out of the 46,227 inpatients that were admitted within the given timeframe. Projecting these figures to the entire inpatient population in the given timeframe finds that the PRAS specialists were asked to evaluate 2,431 out of every 100,000 patients (1,124 x 10^5/46,227). With the same approach, the number of patients evaluated in the outpatient clinic would be 944/100,000 (17,132 x 10^5/1,814,717). Comparison of these two figures shows that the number of consulted patients was 1.57 times more than the number of patients evaluated in the clinic (2,431/944). This ratio indicates that the number of consultations requested for inpatients was significantly higher than the number of patients examined in the clinic (p=0.017<0.05). From a different perspective, the workload one patient brings to the PRAS specialists as of the moment they are admitted to the hospital following a clinical evaluation is 257%.
current consultations reveals that these requests were mostly made for the purposes of wound dressing.

A review of the consultations in terms of etiology shows tissue defects and pressure wounds to be the major (61.7%) reasons. These figures corroborate the redundancy in the consultations requested for our department for wound assessment and dressing. As a separate entity, consultations requiring patient assessment in relation to a probable compartment syndrome (6.6%) or fasciotomy (3.4%) have a share of 10%. Since the fasciotomy procedures of all departments in our hospital are performed by the plastic surgery clinic, this 10% can be explained by this unnamed rule.

In the hospital digital information management system, no limits are defined for the maximum number of consultations that can be requested per clinic. Given this, we believe that, should any medical department perform similar analyses from their own viewpoint, their study results would also underline a comparable work overload.

The comparison data and the data based on the prevalence projections were obtained from the statistics published by the Turkish Ministry of Health Public Hospitals Department (TKHK) and from our hospital’s digital information management system. There is a need for studies that will exploit further databases. Being a single-centered study is one weak point of this article.

As an indirect finding of this study, the high numbers of annual applications to outpatient clinics of public hospitals and of hospitalized patients are worth noting. These data fall outside of the scope of this study and the assumption it is based on and are therefore not discussed in this article. We believe that these should be the focus of a separate study.

CONCLUSION

Minimizing (irrespective of the department) this described workload would be possible by reducing the number of consultation requests, not by increasing the number of specialist physicians. Requests should fulfill the definition of “consultation” and be aimed at providing a solution for the patient. For PRAS, this can be accomplished when the scope and the patient profiles of plastic surgery are better explained and understood. It would be more beneficial-apart from the education given in medical schools-to replace the content of the currently “ineffective” resident rotation programs that teach PRAS applications with a new content that addresses the scope and the patient profiles of PRAS, as well as the conditions that specifically require consulting a PRAS specialist. Given the increasing number of medico-legal problems, physicians’ tendency to consult other departments in order to avoid such possible outcomes should not be misconstrued. As a matter of fact, we believe that this phenomenon should be recognized under “defensive medicine,” a term that is being increasingly used. We believe that a difference can be made by providing training on the scope of plastic surgery and the type of consultations that can be requested of PRAS.

We advocate that the content of the resident rotation curricula should be revised in light of this excessive workload.

Ethics Committee Approval: Authors declared that the research was conducted according to the principles of the World Medical Association Declaration of Helsinki “Ethical Principles for Medical Research Involving Human Subjects”, (amended in October 2013).

Informed Consent: The model of this study was data collected retrospectively and no procedure was performed on any patients for this reason no informed consent was obtained.

Peer-review:Externally peer-reviewed.


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