



Epidemiological profile of patients treated by the plastic surgery service of the João XXIII hospital in Belo Horizonte/MG from March to August 2013

Perfil epidemiológico dos pacientes atendidos pelo serviço de cirurgia plástica do hospital João XXIII em Belo Horizonte/MG no período de março à agosto de 2013

CECÍLIA BORGES DE SOUZA¹
 CARLOS EDUARDO GUIMARÃES LEÃO²
 MARCUS VINÍCIUS MOURÃO MAFRA³
 DANGELO ODAIR VIEL⁴
 ANA ELISA DUPIN⁵
 PATRÍCIA VELOSO SILVA RAMOS⁶
 HUDSON ALEX LÁZARO⁷

Institution: This study was conducted at the Pronto Socorro João XXIII Hospital affiliated with the FHEMIG Network, Belo Horizonte, MG, Brazil.

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■ ABSTRACT

Introduction: The Plastic Surgery Service of the João XXIII Hospital provides support to other specialties through interdepartmental consultation and follows patients admitted to the hospital for plastic surgery. This study analyzed the epidemiological profile of patients treated from March to August 2013. **Methods:** This was a prospective observational study with data collection performed by medical history and physical examination. **Results:** Of the patients evaluated, 75.23% were male and 21.34% female. The predominant age group was economically active, with 62.86% of the patients between 16 and 45 years. Traffic accidents were the main reason for care (44.85%). Pressure ulcers were the most frequent diagnoses, and other lesions evaluated were predominantly of the extremities. Internal Medicine and Orthopedics requested most consultations. Surgical treatment (52.9%) and follow-up with local care (47.1%) showed similar frequencies. **Conclusion:** In order to propose measures for prevention and treatment of injuries within the scope of reconstructive plastic surgery, two issues were highlighted: traffic accidents and pressure ulcers. Both have well-defined causes, but remain at high prevalence. The need for public action that promotes better traffic education and reduction of accidents is clear. In the hospital environment, it is essential to take effective measures to prevent the emergence of dreaded pressure ulcers.

Keywords: Plastic surgery; Epidemiology; High-volume Hospitals; Inpatients; Surgical specialties; Diagnosis.

■ RESUMO

Introdução: O Serviço de Cirurgia Plástica Programada do Hospital João XXIII exerce o suporte às demais especialidades através de interconsultas e, realiza atendimento

- 1 - Resident in Plastic Surgery - Resident on the Plastic Surgery and Burns Service, João XXIII Hospital, FHEMIG, Belo Horizonte, MG, Brazil.
- 2 - Full member of the Brazilian Society of Plastic Surgery - Plastic Surgeon, member of the Brazilian Society of Plastic Surgery, Chief of the Plastic Surgery and Burns Service, João XXIII Hospital, FHEMIG, Belo Horizonte, MG, Brazil.
- 3 - Full member of the Brazilian Society of Plastic Surgery. - Plastic Surgeon, member of the Brazilian Society of Plastic Surgery, Coordinator of the Scheduled Plastic Surgery Service, João XXIII Hospital, FHEMIG, Belo Horizonte, MG, Brazil.
- 4 - Resident in Plastic Surgery - Resident on the Plastic Surgery and Burns Service, João XXIII Hospital, FHEMIG, Belo Horizonte, MG, Brazil.
- 5 - Resident of Plastic Surgery - Resident of the Plastic Surgery and Burns Service, João XXIII Hospital, FHEMIG, Belo Horizonte, MG, Brazil.
- 6 - Resident in Plastic Surgery - Resident on the Plastic Surgery and Burns Service, João XXIII Hospital, FHEMIG, Belo Horizonte, MG, Brazil.
- 7 - Resident in Plastic Surgery - Resident on the Plastic Surgery and Burns Service, João XXIII Hospital, FHEMIG, Belo Horizonte, MG, Brazil.

aos pacientes com entrada no Hospital pela cirurgia plástica. O escopo deste estudo foi analisar o perfil epidemiológico dos pacientes atendidos durante o período de Março à Agosto de 2013. **Métodos:** Trata-se de um estudo observacional prospectivo com coleta de dados realizada através de anamnese e exame físico. **Resultados:** Dentre os pacientes avaliados 75,23% eram do sexo masculino e 21,34% do sexo feminino. A faixa etária predominante foi a economicamente ativa com 62,86% dos pacientes entre 16 e 45 anos. Foi observado que os acidentes de trânsito figuraram como os principais determinantes de atendimentos (44,85%). As escaras constituíram os diagnósticos mais frequentes e dentre as outras lesões avaliadas, observou-se que se concentraram nos membros. A Clínica Médica e a Ortopedia solicitaram o maior número de interconsultas. Evidenciou-se que o tratamento através de abordagem cirúrgica (52,9%) e o acompanhamento com cuidados locais (47,1%) apresentaram frequências aproximadas. **Conclusão:** Na busca por propor medidas para prevenir e tratar as lesões próprias de abrangência da cirurgia plástica reparadora destacaram-se dois pontos: os acidentes de trânsito e as escaras de decúbito. Ambos com fatores determinantes bem elucidados, porém mantendo alta prevalência. Torna-se evidente a necessidade de atuação nas esferas públicas para uma melhor educação no trânsito e redução da ocorrência de acidentes. No âmbito hospitalar é primordial que se adotem medidas eficazes que impeçam o surgimento das temíveis escaras de decúbito.

Descritores: Cirurgia plástica; Epidemiologia; Hospitais com Alto Volume de Atendimentos; Pacientes Internados; Especialidades Cirúrgicas; Diagnóstico.

INTRODUCTION

The Pronto-Socorro João XXIII Hospital (HPS), located in Belo Horizonte/MG and founded in 1973, was affiliated with the State Foundation for Emergency Medical Assistance (Feamur); in 1977, it was incorporated into the Hospital Foundation of the State of Minas Gerais (FHEMIG). The HPS acts as a referral center for patients with multiple trauma, major burns, poisoning, and clinical and/or surgical situations that present risk of death¹. The Programmed Plastic Surgery Service provides support to other medical specialties through interdepartmental consultations requested by the patient's physician, and provides care to individuals followed by the specialty of reconstructive plastic surgery.

OBJECTIVE

This essential study analyzed the epidemiological profile of patients treated by the Programmed Plastic Surgery Service of the HPS from March to August 2013. This study is essential because additional knowledge of the patients may lead to effective measures for prevention and treatment of injuries covered by reconstructive plastic surgery.

METHOD

This was a descriptive, observational, and prospective study of the epidemiological profile of patients assessed by the Programmed Plastic Surgery Service from March to August 2013. Variables such as age, gender, diagnosis prompting consultation or care, specialty requesting consultation, ad-

mitting diagnosis, treatment administered, and length of stay on the Scheduled Plastic Surgery Service were analyzed. All patients followed by the Plastic Surgery Service in this period were assessed; this service exclusively follows users of the Unified Health System.

Data collection was performed through history and physical examination during consultation and care. Patients were divided into the following age groups: 0-15y, 16-30y, 31-45y, 46-60y, and over 60y. The diagnosis prompting evaluation was divided into two major groups: pressure ulcers and other injuries, the latter compiled in subgroups. In addition to direct admissions to the Plastic Surgery specialty, consultations requested by each medical specialty (Orthopedics, Internal Medicine, Neurosurgery, Pediatrics, General Surgery, Hand Surgery, and Vascular Surgery) and dental specialty (Oral and Maxillofacial Surgery and Traumatology) were recorded. The initial diagnosis that led to the hospitalization of the patient was classified into 11 groups: automobile accidents, motorcycle or bicycle accidents, being run over, assault with firearm or other weapon, assault without a weapon, falls from heights and landslides, simple falls, medical conditions, accidents involving animals, accidental trauma with glass/sharp objects/crushing/fireworks, and causes not classified in other groups.

The treatment was initially divided into two groups: surgical treatment and wound care dressings with no surgical intervention. The first group was further subdivided: debridement, skin grafting, flap construction, reconstruction of complex structures, incisional biopsy, and elastic and delayed suturing. The average length of stay of patients followed by plastic surgery was also determined.

RESULTS

The total number of patients who visited HPS from March to August 2013 was 553, of whom 75.23% were male and 21.34% female. In all, 3.44% of patients were children (age less than 12 y), and 68.42% were male and 31.58% were female (Table 1).

Table 1. Patients (%) followed by the Scheduled Plastic Surgery Service from March to August 2013.

Patient profile	Number	Percentage (%)
Men	416	75,23%
Women	118	21,14%
Children	19	3,41%
Total	551	

Female: 6 (31,58%)
Male : 13 (38,42%)

The predominant age range of the patients was economically active, with 30.82% of patients between 16 and 30 y and 32.04% between 31 and 45 y (Table 2). Among the injuries that led to treatment (Figure 1), pressure ulcers

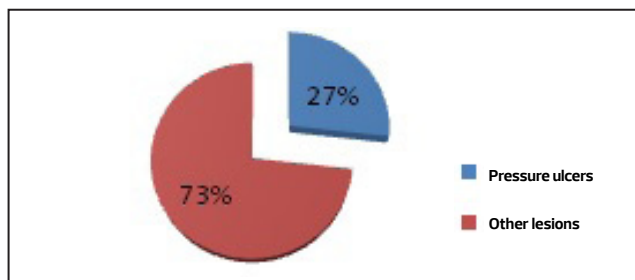


Figure 1. Injuries that prompted care by the at the Programmed Plastic Surgery Service from March to August 2013.

Table 3. Other injuries that led to care by the Programmed Plastic Surgery Service from March to August 2013.

Other lesions	March	April	May	June	July	August	Total
Complex trauma to lower extremities, involving soft tissue and/or bone	34	34	40	34	36	33	211
Complex lesions on the face or scalp	2	5	1	13	8	9	38
Trauma involving hand and fist	5	3	1	2	3	2	16
Complex trauma of other locations	5	4	1	2	1	2	15
Infection of surgical sites	4	3	1	4	1	0	13
Traumatic or postoperative hematoma or seroma	2	2	0	0	0	0	4
Lesions on amputation stumps	5	5	4	4	3	0	21
Fasciotomy coverage	12	8	6	4	9	4	48
Suture dehiscence	0	1	1	3	1	1	7
Other unclassified lesions	7	3	7	8	6	6	37
Total	74	68	62	74	68	57	405

Table 2. Age range of patients who attended the Programmed Plastic Surgery Service from March to August 2013.

Age range	Percentage (%)
0-15	3,88
16 - 30	30,82
31-45	32,04
46-60	16,53
>60	16,73

totalled 27%, and other lesions totalled 73%, grouped according to table 3.

Pressure ulcers in the sacral region were present in more than 87% of cases (Table 4). The specialties of Internal Medicine (40.14%) and Orthopedics (21.52%) generated the largest consultation numbers. Direct admissions to Plastic Surgery accounted for 21.16% of patients under care (Figure 2).

The initial events that led to hospitalization are listed in Table 5. Traffic accidents were clearly the major cause of hospitalization (248 cases, 44.85%). The preliminary collection of data resulted in a total of 338 (52.9%) surgical procedures, and 301 (47.1%) follow-ups with local specialist care without surgical intervention. Surgical treatment showed a predominance of graft procedures (33.73%) and debridement (37.56%) as shown in Table 6.

Patients with pressure ulcers were followed an average of 16.78 days by the Programmed Plastic Surgery Service, and patients with other lesions had an average of 11.70 days of follow-up (Figure 3).

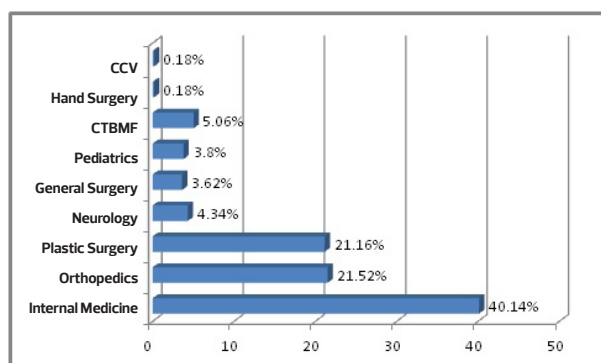


Figure 2. Specialties that requested consultation and attendance by the Scheduled Plastic Surgery Service from March to August 2013 (CCV- Vascular Surgery; CTBMF- Oral and Maxillofacial Surgery and Traumatology)

Table 4. Location of pressure ulcers prompting care by the Programmed Plastic Surgery Service from March to August 2013.

Location of pressure ulcers	March	April	May	June	July	August	Total (%)
Sacral	17	17	14	27	29	25	87,16
Calcaneal	2	1	0	1	1	0	3,28
Occipital	1	1	1	2	0	0	3,38
Trochanteric	1	0	1	1	1	3	6,05
Total	21	19	16	31	33	28	148 100%

Table 5. Causes of admission of patients followed by the Programmed Plastic Surgery Service from March to August 2013.

Causes of admission	March	April	May	June	July	August	Total
Traffic accidents	10	7	5	8	11	7	48
Motorcycle or bicycle accidents	21	26	17	24	18	20	126
Being run over	5	9	10	13	21	16	74
Assault with firearm or other weapon	7	7	6	11	14	21	56
Assault without weapons	2	4	0	4	1	2	13
Falls from heights and landslides	4	3	6	10	7	3	33
Simple falls	1	4	2	3	5	3	18
Medical conditions	4	9	6	10	8	11	56
Accidents involving animals	2	2	3	2	1	0	10
Accidental trauma with glass/sharp objects/crushing/fireworks	2	8	9	5	5	5	34
Causes not classified in other groups	39	8	14	15	10	7	92
Total	97	87	78	105	101	85	553

Table 6. Surgical procedures performed in patients treated by the Programmed Plastic Surgery Service from March to August 2013.

Surgical treatment	March	April	May	June	July	August	Total	%
Grafting	20	17	17	13	25	22	114	33,73
Debridement	19	31	24	23	20	10	127	37,56
Elastic and delayed suturing	13	10	4	3	11	3	44	13,02
Flap construction	11	9	2	10	9	9	50	14,79
Reconstruction of complex structures	1	1	0	0	0	0	2	0,6
Incisional biopsy	0	0	1	0	0	0	1	0,3
Total	64	68	48	49	65	44	338	100

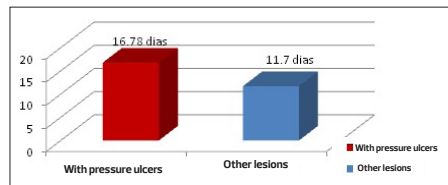


Figure 3. Average length of stay of patients followed by the Programmed Plastic Surgery Service from March to August 2013.

DISCUSSION

The epidemiological profile of the patients who visited the HPS revealed a predominance of male patients and an economically active age group; 75.23% of the treated patients were male. This highlights the high social and financial costs to the state, since these cases are associated with prolonged hospitalization and subsequent post-discharge absence from the patients' professional rehabilitation services. These patients usually are the main, if not the only, income providers for their family.

Traffic accidents directly affect citizens, are related to death, physical disability, and material losses, and may cause serious psychological damage that is often difficult to overcome². The association found in this study between male patients in the age groups of 16–30 and 31–45 y and the occurrence of traffic accidents with injuries, is in agreement with the already solid statistics of the National Department of Transport Infrastructure (DNIT)^{2,3}. According to data presented by the DNIT for 2011 and 2012, the number of male individuals involved in traffic accidents with injuries greatly exceeds the number of women involved in the same type of accidents, a common trend in all states of this country². In this study, plastic surgery was the main reason why individuals involved in traffic accidents underwent interconsultations, accounting for 44.85%. The age group between 16 and 45 accounted for 62.86% of the patients evaluated from March to August 2013.

In all, 27% of all injuries requiring treatment were pressure ulcers or bedsores. These injuries can affect the cutaneous and subcutaneous tissues, can sometimes involve muscle tissue, and even bone or joints. They are common in patients who are bedridden for prolonged periods or those who are immobilized; being bed-bound or immobilized clinically causes tissue compression, followed by ischemic damage and subsequent necrosis⁴. These ulcers are usually located over a bony prominence⁵, and are a major complication in critically ill, hospitalized patients⁵. Four factors extrinsic to the patient can lead to these lesions: pressure, friction, shear, and moisture, with pressure considered the main cause⁶. The moisture resulting from perspiration, fecal, or urinary incontinence predisposes a patient to ulcers formation due to tissue maceration and damage⁵. Intrinsic factors that accompany the appearance of ulcers involve age, nutritional status, tissue perfusion, medication use, and chronic diseases, such as diabetes mellitus and cardiovascular disease⁶. Because HPS is a referral center for care of patients with multiple trauma and clinical and/or surgical situations with a risk of death¹, patients who visit this institute have serious illnesses requiring admission in intensive care units and are immobilized in the supine position for prolonged periods; this predisposes patients to pressure ulcers in regions wherein ischemia developed owing to a prolonged supine position^{7–9}. In this study, sacral ulcers were present in 87.16% of patients with pressure ulcers, and calcaneal ulcers were present in 3.38% patients, occipital ulcers in 3.38%, and trochanteric ulcers in 6.08%. In Brazil, between 17.7% and 39.8% chronically ill and bedridden patients admitted to general hospitals have decubitus ulcers; in a study conducted with

spinal cord injury patients in a teaching hospital, ulcers were observed in 42.5%¹⁰.

According to a proposal by the National Pressure Ulcer Advisory Panel (NPUAP)⁹ ulcers are defined by four stages. Stage I presents as non-blanching hyperemia in the intact skin, usually over a bony prominence; the color of darkly pigmented skin may differ from the surrounding area; the skin may be painful, with either firm or soft consistency. Stage II presents with partial-thickness dermis loss and a pale red-pink wound bed without sloughing, but can also present as an intact or open/ruptured, serum-filled or serosanguinous blister. Stage III presents with full-thickness skin loss, with visible subcutaneous fat, but no bone, tendon, or muscle exposure; sloughing may be present, and there may be undermining and tunneling. Stage IV presents with full-thickness tissue loss, with exposed bone, muscle or tendon; sloughing or eschar may be present in some parts of the wound bed; there is often undermining and tunneling; the depth of the lesion varies by anatomical location, and may be shallow or deep⁹. In addition to generating high costs, the development of pressure ulcers in patients seen by health services has a negative impact on their lives, as well as on their families¹⁰.

Among other injuries evaluated by the Reconstructive Plastic Surgery department during this period, the majority involved the limbs and included complex lesions with traumatic loss of substance, skin necrosis, or assessments for fasciotomy coverage, requiring debridement, grafting, or flap rotation.

The Internal Medicine and Orthopedics departments requested most of the consultations, to ensure complete clinical support in multiple trauma patients by the former, and due to the association between trauma of bone and soft tissue by the latter; this highlights the need for collaboration among specialties.

Surgical treatment (52.9%) and follow-up with local specialist care without surgical intervention (47.1%) had approximately similar frequencies; this demonstrates the importance of the specialty, not only for procedures, but also for the primary evaluation and the observation and clinical treatment of the patient.

The average length of hospital stay of patients with pressure ulcers was 16.78 days and of those with other lesions was of 11.70 days, under the supervision of the Programmed Plastic Surgery Service. This is consistent with the prolonged hospital stays in these patients; such long durations hinder recovery of the patient and increase the risk of infection or other complications, such as osteomyelitis⁶. This also increases physical and emotional suffering by the patient.

CONCLUSION

This study enabled understanding of the epidemiological profile of all patients treated and followed by the Scheduled Plastic Surgery Service of the HPS. In the quest for measures to prevent and treat injuries relevant to reconstructive plastic surgery, two areas were highlighted: traffic accidents and pressure ulcers. Both have well-known causes, but are highly prevalent. This highlights the need for preventive and effective

public action to improve traffic education and reduce accidents. In the hospital environment, it is vital to strengthen measures that prevent the emergence of dreaded pressure ulcers.

In conclusion, plastic surgery is important for the primary evaluation and clinical treatment of the patient and for the support of other medical specialties, in order to provide a complete, ethical and decisive treatment for the patient.

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Corresponding author:

Cecília Borges de Souza

Rua Batista Carneiro, n. 174, apto 408 - Salgado Filho - Belo Horizonte, MG, Brasil
- CEP: 30550-090 - Telefone: (31) 8523-2538
E-mail: cecilia_borgesdesouza@yahoo.com.br