The general hospital inpatient referred to Physical Medicine Department: functional level and epidemiological profile

Liliana Lourenço Jorge¹, André Tadeu Sugawara¹, Margarida Sales Oliveira Carneiro²

ABSTRACT
Hospitalization and severe previous diseases lead to functional decrease and independence loss during activities of daily living among inpatients. Rehabilitation during hospital care is thought to be crucial in immobilism syndrome prevention. According to previous data, ward patients are mainly comprised of elderly individuals who carry disabling diseases, although there is a lack in information regarding their functional levels and rehabilitation needs. This study aimed at verifying functional and social profiles of inpatients from a tertiary general hospital referred to the Physical Medicine Service. The applied measurements were FIM, ASA scale, and demographic data. It was observed that inpatients are physically impaired, need caregivers and are elderly. There is also a strong correlation between FIM and ASA: the worse the functional independence is, the higher the number of comorbidities. Patients might benefit from the hospital stay if they were systematically referred to rehabilitation. Nevertheless, the physician who does not usually deal with rehabilitation is neither aware of the physiatrists’ role in health care provided in wards nor take advantage of their knowledge.

KEYWORDS
rehabilitation, hospitalization, functional independence measure
Introduction

Hospital stay complications can explain the functional decline experienced by young as well as elderly inpatients, but the etiology of the phenomenon is yet to be clarified. The lack of physical activity during hospitalization decisively contributes for the deconditioning consequences among the elderly, which represent the most sedentary group, with the lowest functional reserve in the face of the deleterious effects caused by diseases, and the majority of the inpatient population admitted at tertiary hospitals. Young individuals, extensively studied in Aerospacial Medicine, represent a smaller part of the inpatient population admitted at high-complexity hospitals.

On the other hand, physical activity and kinesiotherapy are recognized as basic elements for the prevention of the morbimortality due to several affections. The preventive role of exercises is especially important among elderly individuals, a population under the risk of physiological alterations caused by deconditioning, which predisposes to the functional decline. The deconditioning can be acute, when it develops from days to weeks, due to an abrupt decrease in activity; its chronic form refers to the one that develops along months or years, in general concomitantly to the functional decline caused by multiple comorbidities. Bed-confined individuals experience mood, coordination, strength and flexibility alterations and decreased levels of participation in self-care activities. The effects of muscle disuse include amyotrophy due to myofibrillar loss, incapacity of motor unit recruiting and protein synthesis reduction, among others. In one study, 80% of the sample of hospitalized patients lost the functional independence they had only two weeks before hospital admission, with the period of recovery of the previous activity pattern varying from 1 week to 3 months after hospital discharge.

The immobilization is caused by and it is a consequence of the low level of the inpatient’s physical fitness. A previous study indicates that even inpatients from rehabilitation hospitals who demonstrate less commitment to their physical therapies evolve with longer hospital stays and lower functional gain (quantified by the Functional Independence Measure – FIM™). At the same time, it is known that the patient’s poor participation is associated, direct or indirectly, to other variables such as depression, cognitive deficit, comorbidities and worsening of their physical and metabolic performance, creating a vicious cycle between low conditioning and immobilization. The literature is scarce regarding functional and participation data among patients from general hospitals. A study compared levels of functionality of patients with an encephalic vascular accident (EVA) from a rehabilitation hospital and a general hospital, showing significant gains of independence from one week of hospital admission at the rehabilitation unit when compared to the other. The gains were proportional to the intensity of the physical activity performed and the patients’ better cognitive levels. Such data suggest that the rehabilitation principles, if implemented in the general hospital setting, could contribute equally for the reduction of hospital stay duration (by minimizing the effects of immobilization) and for a higher functional gain of individuals regarding self-care activities. However, the correlation between functional gain and specific practices of rehabilitation is not well-established in literature, if the adjustments for disease severity are carried out.

The need for rehabilitation is broadly acknowledged for patients treated at different hospital units such as Burn, Orthopedic Postoperative Care, Pulmonary Disease, Neoplasia, Psychiatric Disease and Neurological Sequelae Units. Nevertheless, the common practice is to acknowledge the need for rehabilitation only after the hospital discharge, which is achieved by referring patients to specialized centers. Normally, the patient is treatment is monodisciplinary and fragmented during the hospital stay; in some cases, the physician in charge of the patient will request the intervention of the Physical Therapy Division for eventual activities. The request is carried out through a “consultation request to the Physical Therapy Service”, which the physician fills out at a certain moment during the inpatient’s hospital stay. Thus, the practice concordant with world data and which is observed in general hospitals is that of the dissociation between the diagnostic/curative approach and rehabilitation. The patient does not always benefit from rehabilitating approaches concomitant to treatment, especially if there are significant associated comorbidities. In such cases, the rehabilitation is not capable of preventing the development of sequelae that could be overcome if there were a better control of the associated diseases and an attempt to prescribe early rehabilitation.

There are relevant factors that contribute for the described practice: 1) the non-rehabilitation physician and the medical student have a low level of knowledge on Physiatrics and its range of action; 2) the nonphasist is not always capable of recognizing the rehabilitation needs of patients, which suggests that many patients that could benefit from an intervention do not undergo a consultation with a rehabilitation physician; 3) it is relevant the cost involved in the establishment of rehabilitation programs in general hospital settings, which include medication, therapeutic team and specialized tools; 4) the rehabilitation physician’s role is not well defined or officialized in the general hospital within the medical specialty. Regarding this fact, literature data are old or try to empower the rehabilitation physician’s role at the clinical or surgical discipline in which the patient is inserted at hospital admission.

Similarly, few studies have been carried out to assess the characteristics of general hospital inpatients, their functionality levels and their actual rehabilitation demands.

Objective

This study aimed at determining the functional profile and physical status of inpatients from a general hospital referred to the Physical Medicine Service through specific scales and also which medical specialty these patients originally came from and establishing correlations between the scales and patients’ epidemiological profiles.
Patients and Methods

From February 2005 to February 2006, it was verified at the Physical Medicine Service of Hospital do Servidor Público Estadual – HSPE, the control regarding the requests for consultation carried out by the Clinics, requiring a physiatrist’s or physical therapist’s assessment for the inpatients of the aforementioned hospital. The control included the ward that had requested the consultation and the reason for the request.

Of the initial number of consultation requests, a sample was randomly and systematically selected for the transversal study. The selection was carried out as follows: all consultation requests that reached the Physical Medicine Service on Tuesdays, Wednesdays and Fridays were selected, excluding those that arrived on the remaining days of the week. The subjects in the sample were evaluated according to the following criteria: 1) FIM\textsuperscript{18,19}; 2) American Society of Anesthesiologists (ASA) Physical Status Classification\textsuperscript{20} as a measurement of the disease severity level and its influence on survival; 3) descriptive epidemiological data, such as sex, age, presence of caregiver, comorbidities. Data regarding number of inpatients, hospital discharges, transfers and available hospital beds during the study period were also requested to the Statistical Medical File Service of HSPE (SMFS)\textsuperscript{21}.

The research subjects signed an informed consent form and the research project was approved by the Ethical Review Board of the Institution. The study was designed as a prospective descriptive study and the statistical analysis was performed with Excell® and Braille® software; Odds Ratio was used for nominal data and for non-paired ordinal data, Kruskall-Wallis test with Dunn’s post hoc was employed.

Results

During the study period, 174 consultation requests were sent to the Physical Medicine Service, of which 47.9% were related to male and 51.7% to female patients. The wards that requested the most consultations were: Otorhinolaringology (26), Palliative Care (28), Neurology (16), Nephrology (20), as can be observed in Fig. 1. It is noteworthy that it was not possible to differentiate requests from the Neuroclinics and Neurosurgery in the Physical Medicine records. There were 10 requests that were called “others”, which included requests from the ER, among others. The requests were predominantly for respiratory physical therapy implementation, although many consultations had a concomitant request for motor physical therapy or physiatrist’s assessment. Ten percent of the consultations included a request for a physiatrist’s medical evaluation, but no requests were exclusive for the Physiatrics assessment (Graph 2).

According to data from SAME – HSPE, 25,613 hospital admissions occur annually, occupying the 768 available beds of the hospital. This means approximately 2,134 monthly admissions. When verifying the flow of the clinics that requested the largest number of consultations to the Physical Medicine Service, the following numbers of hospital admissions can be observed: Otorhinolaringology (940 per year), Palliative Care (41 per year), Neuroclinics + Neurosurgery (1449 per year), Nephrology (449 per year). Proportionally, the Service that more often requested Physical Therapy consultations for their patients was Palliative Care (68%), which guarantees that most of their patients are evaluated. Similarly, Nephrology requests consultation for 44% of inpatients, Neurology, 1% and Otorhinolaringology, 2%. The number of patients admitted annually is 25,613 and the number of consultations requested is 174, within the same period.

Of the total of 174 consultation requests, 53 were selected by random collection during the period. The sample consisted of 30 males and 23 females with mean ages of 60.8 and 60.6 years, respectively.
respectively; 81% of the patients had a caregiver during the hospital stay. The distribution of the comorbidities presented by the patients in addition to the reason for hospital admission is shown in Figure 3. Forty-eight percent of the sample had a neoplasia as the main disease and reason for hospital admission (Figure 4).

There was no difference between the genders regarding caregivers and comorbidities (OR = 0.7 and 0.7). MIF mean was 60.03, with the means for the Motor and Cognitive subgroups of 35.84 and 24.19, respectively. There was an inverse association between MIF regarding Motor as well as Cognitive and ASA, as expected: the higher the ASA, the lower the MIF, indicating that the higher the level of involvement, the lower the functional level (p=0.00, Kruskal-Wallis). The fact that MIF is inversely proportional to ASA shows the direction of the association. ASA median was 3 and the mean was 3.28.

Discussion

The importance of rehabilitation care has increased worldwide, mainly due to the increasing aging of the world’s population and the technical advances in the treatment of acute and chronic conditions that lead to patients’ increased survival as well as temporary and permanent deficits. However, despite its importance, the idea of a rehabilitation process is not widespread outside the specialized center settings. In fact, a high prevalence of disabled and functionally dependent inpatients in general and tertiary hospital wards can be observed. The present study confirmed the data found in the literature, by presenting elderly patients who are caregiver-dependent, with high scores at the ASA scale and low MIF scores.

The MIF scale consists of 18 items, with a minimum score of 1 and a maximum of 7. The final score (maximum of 126 and minimum of 18) can be subdivided between motor and cognitive domains; however, the literature points out for a higher reliability of the motor domain. Studies have shown a negative association between comorbidity severity and degrees of functional independence and autonomy, these represented by low MIF scores.

The ASA scale, although initially designed to describe the clinical patterns of patients in the pre- and post-surgical phases, started to be employed in several medical situations and its main advantage is being easy to apply and having a simple classification, from 0 (healthy individual) to 5 (patient unlikely to survive). Regarding Rehabilitation Medicine, its usefulness in evaluating the presence of comorbidities and its influence on the definition of rehabilitation needs has been well established. The present study demonstrated the direction of the association between the ASA and MIF scores and corroborates for the validation of these two scales as useful tools to detect patients’ therapy needs, by assessing clinical status.

Comorbidities

<table>
<thead>
<tr>
<th>Comorbidity</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesidade</td>
<td>2</td>
</tr>
<tr>
<td>Artrópia</td>
<td>3</td>
</tr>
<tr>
<td>STR</td>
<td>1</td>
</tr>
<tr>
<td>Hepatopatía</td>
<td>1</td>
</tr>
<tr>
<td>Anfetaminas</td>
<td>1</td>
</tr>
<tr>
<td>CRF</td>
<td>1</td>
</tr>
<tr>
<td>DM</td>
<td>1</td>
</tr>
<tr>
<td>SAH</td>
<td>1</td>
</tr>
<tr>
<td>COPD</td>
<td>1</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>1</td>
</tr>
<tr>
<td>Pn</td>
<td>1</td>
</tr>
</tbody>
</table>

Abbreviations: STR: stroke; CRF: chronic renal failure; SLE: Systemic Lupus Erythematosus; DM: diabetes mellitus; SAH: systemic arterial hypertension; COPD: chronic obstructive pulmonary disease; Pn: pneumonia.

Figure 3
Comorbidities of patients for whom requests of Physical Medicine consultation were made.

Main disease responsible for hospital admittance

- PSP
- Amputation
- Renal transplant
- CRF
- Sepsis
- RA
- STR
- Fracture
- Cardiopathy
- Neoplasia
- Alzheimer
- MS
- Guillain
- Guillain-Barre Syndrome

Abbreviations: PSP: progressive supranuclear paralysis; CRF: chronic renal failure; RA: Rheumatoid Arthritis; STR: stroke; MS: multiple sclerosis; Guillain: Guillain-Barré Syndrome.

Figure 4
Main diseases responsible for patients’ admittance at the hospital, for whom requests of Physical Medicine consultation were made.
and function. Elderly individuals, with a predominant ASA score of 3 or 4 and who are functionally dependent, are the majority in the sample and could benefit from rehabilitation.

The data in the present study suspect that physicians in general do not know the Physiatrist and do not diagnose the rehabilitation needs of inpatients, as there is a great discrepancy between the number of inpatients and physical therapy requests. However, this study cannot state objectively on the rehabilitation demand among inpatients in general, as the demands were not verified among randomly selected inpatients and that were not referred to the Physical Medicine Service.

Other biases prevent the data obtained from being generalized. The undernotification of requests could have occurred, when the physician in charge informally requests therapy to the Physical Therapist. If these cases are added to those when the Physical Therapists actively treat the inpatients according to the observed clinical needs and those when the Physiatrists observe therapy demands and prescribe treatment without waiting for a formal request, it is a fact that the number of individuals treated by the Physical Medicine Service is higher. In fact, according to the data from the statistical spreadsheets of the Physical Medicine Service concerning the studied period, inpatients underwent 67,700 individual physical therapy procedures and 4,703 physiatrist’s assessments (these high numbers are due to the fact that, in most cases, the inpatient benefits from several physiatrist’s assessments and undergoes physical therapy daily during hospital stay). The great discrepancy between the values above (67,770 and 4,703) and the number of consultation requests that reach the Physical Medicine Service (174) suggest a big difference between the “real need” for a physiatrist’s assessment/physical therapy procedures and the “perceived need” by the treating physician, translated as the consultation requests. Such observation could be more explored in a further study.

It cannot be affirmed with published data, but the reality of rehabilitation in general hospitals seems to be far from the ideal conditions and shows scarcity regarding the creation of rehabilitation teams within the wards. The change in such reality requires an institutional effort and continuous endeavor in promoting the Rehabilitation Service. It is believed that by making the physiatrists’ work better known they can increase their recognition among other medical specialties and thus help to implement rehabilitation procedures for inpatients. At HSPE, three physiatrists are distributed among the wards with the purpose of giving consultation to inpatients and prescribing protocols to be followed by the 16 physical therapists who are also subdivided among the several specialized wards.

It can be inferred that consultations were requested only for the more severely affected patients and, therefore, the study does not demonstrate the correct epidemiological profile of inpatients. The SMFS does not have data on all consultation requests that originated from each medical specialty; the lack of information impaired the verification of the hypothesis that the non-rehabilitation physician does not refer patients to the Physical Medicine Service proportionally to the other Disciplines. Additionally, there are no available data on the length of hospital stay for each hospital inpatient. It is believed that there is a tendency to carry out medical evaluation and consultation in patients who remain for longer periods in the hospital, not only due to presence of comorbidities but also for the longer period of exposition to medical approaches; such information can also be considered a study bias.

Therefore, the difference between the number of consultation requests and the actual number of activities in the Physiatrics and Physical Therapy of the Service of Physical Medicine, added to the probable differences between the epidemiological profile of the inpatients for whom the consultation was requested and the other inpatients, the data from this study cannot be transposed to other hospital realities. Another factor that prevents the generalization of the data is the small sample size.

In order to solve the abovementioned problems, the next step would be a comparative study with two groups, being one with randomly selected patients that were not referred to the Physical Medicine Service for consultation and another with patients that are similar to the ones depicted in the present study. Moreover, it would be necessary to actively search all clinical and surgical specialties for consultation requests for the other Services in addition to Physical Medicine.

Conclusions

- The population of inpatients referred to the Physical Medicine Service for consultation is homogeneously elderly, caregiver-dependent, presenting comorbidities and low functional levels.
- The correlation between MIF and ASA suggests a worse functional level among patients who are more severely affected.
- Further studies are necessary to investigate the profile of the other inpatients, as well as the consultation requests from the other hospital services.

References


