

MULTIPROFESSIONAL ELECTRONIC PROTOCOL IN BARIATRIC SURGERY*

*Protocolo eletrônico multiprofissional em cirurgia bariátrica**

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ABSTRACT – Background – Obesity is a multi factorial disease. Data collection plays a fundamental role for conducting papers with high level of quality and obesity surgery lacks the means to carry out prospective studies with high reliability. Data from electronic protocols are more complete, have fewer errors, are more consistent and have a low percentage of violations in relation to paper charts. **Aim** - 1) To create a theoretical basis of clinical data regarding the multiprofessionalism on metabolic and bariatric surgery; 2) to computerize this basis by transforming it into electronic multi professional protocol; 3) to incorporate it into the SINPE[®]; 4) to provide the protocol address and their collections for viewing via the Internet using SINPE WEB[®]. **Method** – The creation of the theoretical background was done in Word[®] - later transformed into digital form to be used as electronic protocol – based on literature review of nine textbooks in morbid obesity, bariatric surgery and metabolic multi professionalism books, special books in psychology and nutrition applied to the subject. Was added systematic review of the literature based on scientific articles published over the last five years in Medline/Pubmed, Lilacs and Scielo and in theses and dissertations done with electronic protocols. Thus, 10,306 items were computerized in a hierarchical and branched containing data related to medicine, physiotherapy, psychology and nutrition applied to the subject. **Results** – The complete protocol can be accessed to view in site www.sinpe.com.br – **Conclusions** – 1) It was possible to create electronic database regarding the clinical multi professionalism on bariatric and metabolic surgery to collect standardized information; 2) it was possible to computerized the database; 3) it is incorporated into the SINPE[®]; 4) the electronic protocol and its collections were made available for viewing via the Internet using SINPE WEB[®].

HEADINGS - Obesity, morbid. Eletronic protocols. Medical informatics.

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RESUMO – Racional - A obesidade é doença multifatorial. A coleta de dados exerce papel fundamental para realização de pesquisas de alto grau de qualidade e, na atualidade, a cirurgia da obesidade carece de meios para realização de pesquisas prospectivas com elevado nível de confiabilidade. Os dados obtidos em protocolos eletrônicos são mais completos, têm poucos erros, são mais consistentes e apresentam baixo percentual de violação em relação aos prontuários de papel. **Objetivo** - 1) Criar base teórica de dados clínicos referentes à multiprofissionalidade na abrangência da Cirurgia Bariátrica e Metabólica; 2) informatizar essa base transformando-a em protocolo eletrônico multiprofissional; 3) incorporá-la ao SINPE[®]; 4) disponibilizar este protocolo eletrônico e suas coletas para visualização via internet utilizando SINPE WEB[®]. **Método** - A criação da base teórica em Word[®] - depois transformada em forma digital para ser utilizada como protocolo eletrônico - foi baseada na revisão bibliográfica de nove livros-texto em obesidade mórbida, cirurgia bariátrica e metabólica, livros de multiprofissionalidade, livros específicos em psicologia e nutrição aplicados ao tema. Adicionou-se revisão sistemática da literatura atual com base em artigos científicos publicados nos últimos cinco anos no Medline/Pubmed, Lilacs e Scielo e também em teses e dissertações realizadas com protocolos eletrônicos. Assim, foram informatizados 10.306 itens de forma hierarquizada e ramificada contendo dados relacionados à medicina, fisioterapia, psicologia e nutrição. **Resultados** – O protocolo completo poderá ser acessado para visualização no site www.sinpe.com.br. **Conclusões** - 1) Foi possível criar base eletrônica de dados clínicos referentes à multiprofissionalidade em cirurgia bariátrica e metabólica para coleta padronizada de informações; 2) foi possível informatizar esta base de dados; 3) ela está incorporada ao SINPE[®]; 4) o protocolo eletrônico e suas coletas foram disponibilizados para visualização via internet utilizando SINPE WEB[®].

DESCRITORES - Obesidade mórbida. Protocolos eletrônicos. Informática médica.

* In order to better understand the protocol in its fullness, the reader must access the software available for viewing on the site www.sinpe.com.br

INTRODUCTION

Obesity is a multifactorial chronic disease, commonly associated with complications. When surgical treatment is necessary the procedure is performed by a multidisciplinary team and its results are directly linked to changes in lifestyle⁵.

It is therefore essential that each member of the multidisciplinary team has overview composed by several data collected. In this sense, the possibility of using electronic protocol provides maintenance of information, reliably, improves the storage and permits analysis of data scanned, so it can be accessed at any time¹².

The quality of data obtained from electronic protocols is more complete, has few errors, is more consistent and has a low percentage of violations in relation to paper charts⁴.

Collaborating with medical computing, in order to offer an alternative for the preparation of protocols, was created by Prof. Dr. Osvaldo Malafaia software with architecture identified by the acronym SINPE[®] - Integrated Electronic Protocol System. The idea of what would become the software arose in 1992 when he suggested the creation of his line of research of electronic protocols. The SINPE[®] has intellectual property registration on INPI under number 06056-1 RS.

SINPE[®] was developed to bypass some deficiencies typically found in research, such as lack of standardization of terms, the non-use of data from a research of another, difficulties in conducting multicentric and multidisciplinary research⁶.

There are currently electronic protocols incorporated into the SINPE[®] in several areas as gastrointestinal surgery, urology, ophthalmology, nursing, physical therapy and surgical center administration; other protocols are under development. Since its creation, was offered advance in the collection and storage of scientific data, making access and crossing information quick and secure - an important tool for growth the universe and scientific research¹¹.

This study aims to: 1) create theoretical basis of clinical data regarding the multi professionalism on metabolic and bariatric surgery; 2) computerize this basis by transforming it into electronic multi professional protocol; 3) incorporate it into the SINPE[®]; 4) provide the protocol for electronic display with its clinical collected data for visualization through Internet using SINPE WEB[®].

METHOD

The goal of the first step was to create a theoretical basis for medicine, nutrition, psychology

and physiotherapy for possible inclusion in computerized electronic protocol.

So, literature review was conducted with the choice of nine recognized textbooks in bariatric surgery and morbid obesity and metabolic multi professionalism books, special books in psychology and nutrition applied to morbid obesity, bariatric and metabolic surgery. They were:

- Update: Surgery for the Morbidly Obese Patient (Deitel; Cowan Jr., 2000);
- Cuidados Pré e Pós-operatórios na Cirurgia da Obesidade (Kawahara, 2005);
- Cirurgia da Obesidade (Garrido Jr. et al, 2002);
- Síndrome Metabólica: Conceitos Atuais. (Luna, 2006);
- Uma Abordagem Multidisciplinar. (Lancha Jr., 2006);
- Obesidade: Perguntas e Respostas (Dâmaso; TOCK, 2005);
- Obesity Surgery – Principles and Practices (Pitombo et al. 2008);
- Transtornos Alimentares e Obesidade (Claudino; Zanella, 2005);
- Contribuições da Psicologia na Cirurgia da Obesidade (Franques; Arenalis-Loli, 2006).

The preoperative evaluation was scheduled to have medical exams, clinical laboratory tests, doctors' visits and guidelines for each specialty, ie, cardiologist, pulmonologist, gastroenterologist, endocrinologist and endoscopist.

The evaluation on physiotherapy was based on treatment protocol used at the Department of Metabolic and Bariatric Surgery, Evangelic Hospital of Curitiba and Our Lady of Rocio Hospital of Campo Largo, PR, Brazil.

The items related to nutrition and psychology, had the help of professionals from these areas also based on the literature. In the case of nutrition, the protocol used was the one from Catholic University of Rio Grande do Sul, Porto Alegre, Brazil. Psychology had collaboration of two professionals from the area. After reaching a consensus among the professionals and literature the items were created with their ramifications.

After the study of these books began systematic review of the literature based on scientific articles published over the past five years, which were collected in three different electronic research databases: Medline/Pubmed, Lilacs and Scielo and also performed in theses and dissertations with electronic protocols. Some previous papers to the mentioned period were consulted when relevant.

Software

After reviewing the literature in textbooks and articles on the internet, 10,306 items were collected, grouped into six main segments: medical history,

physical examination, pre-operative assessment, results of pre and post-operative treatment and outcome. Each segment generated other branches, created in the form of tree.

For better understanding and monitoring the protocol is necessary for the reader to navigate the site www.sinpe.com.br for viewing the entire protocol and the data collected on metabolic, bariatric surgery and patients.

RESULTS

For initial understanding of the protocol, it is divided into two parts: the master protocol and specific one(s). The master protocol contains 10,306 items with all information (items) related to the theme and its multidisciplinary approach. The specific is part of the master and contains the items recovered from the master and directly related to the research (question wanted to be answered), more or less extensive, since the information had been collected and stored in the master protocol.

The following tutorial intend to help the navigation which is opened for viewing.

- 1) Assess the address <<http://www.sinpe.com.br/sinpe/>> Bariatric Surgery Multi Professional Protocol that contains the items and the medical collected. To view this protocol use SINPE WEB® login user "visitante", password "visitante" and HUEC institution (Figure 1).



FIGURE 1 - Initial access to the SINPE WEB®

- 2) After clicking the "Login" button the following screen will appear, asking you to select the master protocol. Click "Continuar" (Figure 2).



FIGURE 2 - Selection of the master protocol for viewing

- 3) You have permission to view this protocol, but is restricted to change any data registered in the program (Figure 3).



FIGURE 3 - Main view of SINPE WEB®

- 4) The information in the master protocol are presented through the menu option "Protocolos" and "Mestre" (Figure 4).



FIGURE 4 - Figure containing the master protocol for viewing

- 5) To view the collections made open "Dados" and "coleta" (Figure 5).



FIGURE 5 - Figure containing collections for viewing

- 6) The program defines the type of user accessing the system, and permission granted to him. The types of users are: root user (can create, register institutions and assign permissions to other users, have unrestricted access to handling other protocols); creator of protocols (can create new protocols and administrative permission); user (can only use the system with permission).
- 7) With respect to permissions, they can be of four types: administrator (owns all rights to the master and specific protocols and can add, delete or change data); collector (is allowed to register patients and collect data only); viewer (can see the structure of

the master and specific protocols without making changes); researcher (only possibility is to undertake research on the data collected).

8) The handling of clinical data begins with the master protocol (data set arranged in a hierarchical way, called folders, which are subdivided into items and sub-items, spread over different generations called "brother" and "son", defined by the theoretical basis. Later, it can be made the preparation of specific protocols created from the master protocol. For example, the specific protocol created was Physical Therapy for Metabolic and Bariatric Surgery.

The results of collected data with the patients currently incorporated in this protocol is the subject of another paper⁹.

DISCUSSION

There are few systems designed to collect clinical data from a particular disease. Hospitals already use electronic databases, but directed to different areas as the ones connected to administration, finances, medication, laboratory analysis and radiology¹⁰.

This paper seeks to format an "Electronic Protocol" capable of generating database and used in multi centric and multi professional ways, easy to use, with good quality information and easy handling, but with the characteristic of not containing too much information (not relevant), which can compromise the easiness of data collection.

The realization of this database, trying to make it practical and applicable to particular areas, was very complex. The computerized clinical data collection, in addition to saving human and financial resources, provides a reduction in search time^{1,3,9}.

The program provides resources that determine their safety, and once carried out and completed the data collection, it can not be changed. But the inclusion of new items is possible, without changing the database already used, ie the improvement and updating of the database is possible. The safety in the application of SINPE[®] also applies to the SINPE WEB[®].

Another important aspect with confidentiality and data security are the need for identification and password for each user type. This complicates the risk of inappropriate access or change the type of permission granted for each researcher.

The application enables local and remote use and can be run on client machines, web servers and handheld computers with the ability to print the protocol on paper, to perform the manual collection without losing the pre-established parameters in case of technical or electrical problem².

This protocol also has the feature to allow the insertion of images, videos and sounds, facilitating the understanding by the examiner, in addition to the

benefit of a picture or video can be accessed by more than one examiner and serve as reference for assess the progression or regression of the disease⁶.

CONCLUSIONS

With the creation of Electronic Multidisciplinary Protocol for Metabolic and Bariatric Surgery, it is concluded that: 1) it was possible to create electronic database regarding the clinical multi professionalism on metabolic and bariatric surgery by collecting standardized information; 2) it was possible to computerize this basis data in the form of software; 3) the implementation of the theoretical basis of clinical data in the master protocol and preparation of the specific protocol was performed; 4) electronic database of clinical data regarding multi professionalism in bariatric and metabolic surgery is incorporated into the SINPE[®].

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