[ORIGINAL ARTICLE]

Japan Triage and Acuity Scale and Training Course for Emergency Department in Japan

Akiyo KIZAWA 1), Hiroshi OKUDERA* 1), Masahiro WAKASUGI 1), Megumi TAKAHASHI 1) and Mayumi HASHIMOTO 2)

Department of Crisis Medicine and Patient Safety, Graduate School of Medicine and Pharmaceutical Science, University of Toyama, Toyama, Toyama, Japan 1) Department of Nursing, Kanagawa Institute of Technology, Atsugi, Kanagawa, Japan 2)

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ABSTRACT

Canadian Triage and Acuity Scale (CTAS) was developed by the Canadian Association of Emergency Physicians (CAEP) in the 1990s, and is used in Canada as an emergency medicine system. We developed Japan Triage and Acuity Scale (JTAS) based on CTAS and released as prototype in 2011. In Japan, acuity assessment is now covered by medical fees under healthcare policy, and nationwide data collection and analysis by medical institutions are now underway. Future studies should include comparisons between different institutions and regional medical service areas, and their utilization as a benchmark for the national evaluation of regional medical function.

Introduction

The Canadian Triage and Acuity Scale (CTAS), which was developed by the Canadian Association of Emergency Physicians (CAEP) in the 1990s 1-3), is used in Canada as an emergency medicine system. The CTAS was developed with two objectives in mind: triaging the care required by patients in emergency departments and carrying out investigations into the care process, amount of work, and social background. The CTAS was not developed as an inhibitory measure for dealing with the issues of overcrowding and unnecessary, non-urgent examinations faced by emergency departments in Japan, which result from the concentration of patients in these departments. In practical terms, it triages emergency patients according to a set of algorithms and provides an index for investigating acuity in light of these patients’ conditions and outcomes.

We carried out a wide-ranging review of matters including emergency department triage and acuity. In the process of this review, the committee focused on the above-mentioned CTAS and began to gather information about it.

Matterias and Methods

It was decided that a joint committee of study groups would attend the CTAS International Networking Meeting held during the Annual Meeting of the CAEP in Calgary, Alberta on June 9-10, 2009. In addition to the host nation of Canada, the 2009 meeting was attended by representatives from other countries including the United Kingdom and Singapore, and our delegation constituted the first official Japanese representation. As participants in the meeting, we proposed, among other suggestions, that the CTAS be translated into Japanese, studied, and adapted to the Japanese context. We received permission to do so and an official
agreement was signed by the JSEM (Japanese Society for Emergency Medicine) and JAEN (Japanese Association of Emergency Nursing).

In February 2010, Professor Michal Bullard, the leader of the team that developed the CTAS 2008, which was the current version at the time, was invited to attend the Triage Special Interest Group of JSEM in Tokyo, and give a special lecture at the International Meeting for Instructional Systems in Healthcare in Toyama. At the Triage Special Interest Group of JSEM in Tokyo, he attended as an international adviser and took part in a discussion of the introduction of a Japanese version of the CTAS. In Taiwan, CTAS was already modified and enveloped as the Taiwan Triage and Acuity Scale (TTAS) 6, and we discussed its introduction to a non-English-speaking environment and the preparation of the Taiwanese version. To assist with the development of the JTAS, it was also agreed readily that Japanese participants could take part in the CTAS course in Canada. In addition, Professor Bullard took part in discussions with participants from regional medical institutions at the International Triage Research Meeting (Toyama), which was held immediately afterward, to deepen mutual understanding. These occasions acted as a spur to the evaluation of in-hospital triage in Japan, and in 2010 this was adopted as part of the Tokyo Metropolitan Government’s hospital subsidy projects 5.

In September 2010, a delegation of participants from Japanese emergency medical institutions (Fig.1) attended the CTAS course and CTAS instructor’s course (Fig.2) at the University of Alberta Hospital in Edmonton, Alberta, and took part in a study tour of medical institutions in that city. (Fig.1). The participants in the study tour included not only doctors and nurses but also the technical staff responsible for the development of the anticipated Japanese system, specialists from the Ministry of Health, Labour, and Welfare, and the Fire and Disaster Management Agency.

Fig.2 The Canadian Triage and Acuity Scale course at the University of Alberta, Edmonton (Professor Bullard is on the far left).

Results

When taking the CTAS courses in Canada, members of the delegation received the course materials for the CTAS provider course and the CTAS instructor course 6. These were studied in depth, and the process of introducing them into Japan and developing a Japan Triage and Acuity Scale (JTAS) based on the CTAS went ahead. In this process, the decision was made within the JSEM to adopt different terminology to avoid the possibility of confusion between the triage used in emergency medicine and that implemented in times of disaster. Initially, a literal translation of the CTAS was published as a set comprising a book and online access right, and a literal translation of the CTAS course materials was published as a provider’s manual 7.

In tandem with the introduction of the CTAS/JTAS, the Fire and Disaster Management Agency established the Committee to Investigate a System for Acuity Assessment (Triage) Accepted by Society as a Whole, which investigated similar efforts in emergency medicine before patients arrive at hospital, and public interest rose as a result. Attention was also focused on the Regional Medical Care Revitalization Funds, a measure that came into effect at the same time, and emergency room triage was selected as part of the framework for the Regional Medical Care Revitalization Funds in Toyama and Kanagawa prefectures. In light of these social trends, the 2012 medical fee revisions included “in-hospital triage” as an item covered by medical fees.
Currently, the JSEM JTAS Investigation Committee offers an online version of the Acuity Assessment Support System in September 2009, a version for the iPad was made available for purchase in the Apple Store. The JSEM changed the name of the course to the JTAS Course when in-hospital triage became covered by medical fees, and issued a course textbook, called the JTAS Guidebook 2012. JTAS trial courses were held in collaborating institutions from Hokkaido to Kyushu, and the first JTAS course was held at the 15th Annual Meeting of the JSEM (in Kumamoto). The use of the CTAS/JTAS as teaching materials for certified emergency nurses is also becoming well established (Fig.3). To date, 231 training courses have been held throughout Japan, attended by 3158 participants.

In the CTAS/JTAS, a chief complaint is selected based on the direct claims made by the emergency patient and information from the emergency response team. In most cases, the patient has multiple complaints and chief complaint selection requires a certain amount of experience and training. The selected chief complaint is compared with the JTAS chief complaint list and the patient’s condition is subsequently evaluated. In addition to major indicators, a large number of supplementary factors are also provided for the evaluation of condition, which are used as appropriate to assess acuity. The JTAS provides the level of acuity rather than a severity assessment or diagnosis. As the medical fee represents a medical management cost, the actual assessment of acuity may be defined as a nursing task, although a doctor’s comprehensive instructions are required.

Acuity is determined according to a five-grade scale comprising Level 1 resuscitation (blue), Level 2 urgent (red), Level 3 semi-urgent (yellow), Level 4 less urgent (green), and Level 5 non-urgent (white). Its relationship to triage in times of disaster can be easily understood with Level 1 resuscitation (blue) being the black tag, and Levels 2–4 being red, yellow, and green, while Level 5 does not exist among disaster victims.

Following the acuity assessment, medical treatment proceeds according to the protocol of the medical institution concerned. The JTAS course developed by the JSEM currently provides training for assessing acuity that involves using a range of indicators from the selection of chief complaints.

Acuity assessment is carried out by nurses in emergency departments, which act as the gateway to the hospital, by using critical thinking (or clinical inference), and the process leading up to the assessment must be able to stand up to objective evaluation. Therefore, this requires not only nurses with the credentials and clinical experience to carry out acuity assessments but also assistance from, and validation by, doctors.

The ultimate goal of the introduction of the JTAS is to improve hospital function as verified by the route taken by patients after the acuity assessment, including treatment and test systems, severity evaluation and treatment, and therapeutic outcomes for inpatients. Therefore, in its truest sense, the introduction of the JTAS should result in the re-

Fig.3 The JTAS course in use as a training course for certified emergency nurses (Japanese Nursing Association Training Center).
construction of hospital functions overall following in-hos-
pital triage in emergency departments, which requires the
direct understanding and cooperation not only of doctors
but also of the hospitals as a whole.

Discussion

As the initial translation of the CTAS was literal, includ-
ing differences due to divergences in the situations of the
two countries, it contained points that did not correspond to
the Japanese system of clinical medicine. The opinions of
specialists and medical associations in different disciplines
were subsequently incorporated and they were gradually
revised to create the current version. As typical examples,
“heatstroke” was added by the JSEM Heatstroke Investiga-
"tion Committee as a module to the environmental chief
complaints group, and “post-vaccination symptoms” was
added by the Japanese Society of Emergency Pediatrics as a
module to the general complaints group in the pediatric
chief complaints list. Modules will continue to be added
and revised in the future, and the latest version of the Acui-
ty Assessment Support System will be made available on-
line. Although online distribution and downloads are the
main form of dissemination, a permanent Internet connec-
tion is not required because managers at medical institu-
tions will need to be responsible for downloading the latest
versions via an Internet connection on a regular basis.

For the Canadian CTAS, statistics are prepared using a
database that covers treatment and prognosis at a num-
ber of core hospitals, which means that it is always possible to
carry out validation and to demonstrate evidence. Evidence for
acuity assessments according to the JTAS, including patient
prognoses, should be established in the same way as for the
CTAS. The need for the system’s introduction is over-
whelmingly increasing due to the process now being cov-
ered by medical fees. However, the priority is currently on
holding workshops to spread awareness of how to use the
Acuity Assessment Support System.

From the viewpoint of hospital function, in-hospital tri-
age is nothing more than the starting point for the various
processes carried out in the hospital. As such, its coordina-
tion with other in-house systems and the establishment of
its objective evaluation are both urgent tasks.

Regarding future trends, it will be feasible to conduct a
project to digitize acuity assessed by in-hospital triage,
post-admission severity evaluation, tests and treatment, and
outcomes, and to analyze these in terms of medical statis-
tics, to verify the validity of the JTAS, and to establish evi-
dence.

This project is currently in preparation as Stage 2 of the
JTAS Project. The tasks involved in Stage 2 will become
the core of medical and scientific research in the JTAS Pro-
et, and will be applied for such purposes as the validation
of emergency medicine as part of comprehensive local
healthcare.

Conclusions

The JTAS has been developed from the foundation of the
CTAS, which is the Canadian acuity assessment system. In
Japan, acuity assessment is now covered by medical fees
under healthcare policy, and nationwide data collection and
analysis by medical institutions are now underway. Future
studies should include comparisons between different institu-
tions and regional medical service areas, and their utiliza-
tion as a benchmark for the national evaluation of regional
medical function.

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要 旨

救急外来トリアージ支援システム JTAS と JTAS 研修コースの開発

木澤 晃代 1)、高橋 功 1)、若杉 雅浩 1)、高橋 恵 1)、橋本 真由美 1)

富山大学大学院医学系研究科 院内総合医療センター 院内総合医療センター

救急外来トリアージ支援システム JTAS は、カナダの救急外来トリアージを支援するシステムとして、1990年代より主にカナダ救急医学会により開発された。JTAS2008では、成人と小児が統一されたシステムとなり、トリアージナースのための研修コースも同時に開発され、カナダ全土に導入されている。日本臨床救急医学会と日本救急看護学会による合同トリアージナース研修検討委員会による、トリアージナースのための研修コースの開発に着手した。2009年にカナダ救急医学会の開催されるCTAS会議に参加し、日本語版のトレーニングマニュアルを発表した。この頃より国人の交流を深め、2010年秋には、カナダのCTAS開設拠点であるアルバータ州立大学を訪問し、システム見学、CTASコースおよび指導者の協力の下で、日本語版の開発に着手した。以降、日本語版CTASで研修コースを全国開講し、2012年に教材としてJTAS（Japan Triage and Acuity Scale）ガイドブック2012を刊行しコース内容を刷新しJTASコースを、現在に至る。現在、JTASを用いた救急外来トリアージは医学管理学科「院内トリアージ」として策定され、全国の主として二次救急医療機関のインセンティブとして国内に普及している。今後は、わが国固有のJTASのエビデンスの開発や、保健医療全般の応用が必要である。

キーワード：JTAS、トリアージ、尖銳度、コース、救急医療

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