

Postersession I

Abstract X

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Titel Traumatic Brain Injury – How do we dispatch ?

Introduction

Traumatic brain injury (TBI) is the leading cause of death in children and young adults. In Denmark, ambulance dispatch is criteria-based depending on main symptom or incident, but no separate dispatch criteria exist for head trauma or TBI. The aim of this study was to investigate which dispatch criteria are assigned to TBI patients and to examine 30-day mortality in patients suffering TBI.

Methods

Population-based follow-up study of patients calling 112 in the Central Denmark Region and subsequently diagnosed with TBI according to ICD-10 codes registered in the Danish National Patient Registry from October 1 2011 to December 31 2014. We predefined 7 of 37 dispatch criteria to expectedly be assigned to TBI patients.

Results

Of 75,696 112-calls, 1427 patients were subsequently diagnosed with TBI (1.9%). The five most frequent dispatch criteria were; "Accidents" 47%, "Traffic accident" 19%, "Minor injuries" 10%, "Impaired consciousness - paralyses" 6%, "Violence" 5%. In 22% of TBI patients, other than the expected dispatch criteria were assigned. 30-day mortality rate in TBI patients was 1.6% (95% CI 1.1-2.4%). In patients with confirmed intracranial lesions (bleeding/fracture, n = 229) 30-day mortality was 10% (95% CI 6.8-15). Of these patients, 11 of 229 (5%) did not receive an ambulance at initial 112-call. 2 of these patients died.

Discussion

A main of the emergency medical calls were assigned predefined expected criteria, but a considerable amount did not. Dispatch criteria may be presumed secondary, as long as patients in need of emergency medical services are receiving relevant help. When patients suffering intracranial lesions do not receive relevant dispatch resulting in mortal outcome, modifications to the dispatch criteria and algorithm may be considered.

Conclusion

Patients suffering TBI are assigned very different dispatch criteria. One in five were assigned criteria not generally associated with TBI. Modifications to the dispatch criteria may improve dispatch for TBI patients.

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Titel Effects of AED-feedback mechanisms and shock modalities on survival:
a Danish public access defibrillation programme

Introduction

The Danish public access defibrillation (PAD) programme is based on voluntary registration of privately owned automated external defibrillators (AEDs). Knowledge concerning the effect of AED-feedback mechanisms and shock modalities on clinically relevant outcomes is limited. We primarily sought to determine return of spontaneous circulation (ROSC) upon hospital arrival and 30-day survival according to AED-feedback mechanisms. In addition, we studied the effect of AED shock modalities.

Methods

Between 2011 and 2014 we collected data on out-of-hospital cardiac arrests (OHCAs) in the Capital Region of Denmark with an AED applied prior to ambulance arrival. Patient data were obtained from the Danish Cardiac Arrest Registry and medical re-

cords. AED data were retrieved from the Emergency Medical Dispatch Centre and information on feedback mechanisms, energy waveform and energy level was downloaded from the applied AEDs.

Results

A total of 196 OHCA (table 1) had an AED applied prior to ambulance arrival; 62 (32%) provided audio-visual (AV) feedback, 134 (68%) used metronome (n=77) or no feedback (n=57). We found no difference in ROSC or 30-day survival according to AV-feedback; 34(55%, 95% CI [43 - 67]) vs. 72(54%, 95% CI [45 - 62]), p=1 and 24(39%, 95% CI [28 - 51]) vs. 53(40%, 95% CI [32 - 49]), p=0.88, (table 2). Moreover, we found no difference in ROSC or 30-day survival according to use of a metronome; 43(56%, 95% CI [44 - 67]) vs. 29(51%, 95% CI [37 - 64]), p=0.6 and 31(41%, 95% CI [30 - 53]) vs. 22(39%, 95% CI [27 - 53]), p=1.

Initial shockable rhythm was detected in 85 (45%). In these patients, 54 AEDs used biphasic truncated exponential waveform and 31 used rectilinear biphasic waveform, ROSC was achieved in 42(78%, 95% CI [64 - 88]) vs. 25(81%, 95% CI [63 - 93]), p=1 and 30-day survival in 37(71%, 95% CI [57 - 83]) vs. 22(71%, 95% CI [52 - 86]), p=1.

In the 85 cases of OHCA with initial shockable rhythm, 57 (67%) delivered first shock with an energy level of 150 J or less; 19 (22%) used energy level above 150 J; and 9 (11%) used impedance specific energy level. We found no differences in ROSC or 30-day survival according to AED energy level; 44(77%, 95% CI [64 - 87]) vs. 15(79%, 95% CI [54 - 94]) vs. 8(89%, 95% CI [52 - 99]), p=0.92 and 37(67%, 95% CI [53 - 79]) vs. 13(68%, 95% CI [44 - 87]) vs. 9(100%, 95% CI [66 - 100]), p=0.13, respectively.

Discussion

The European Resuscitation Council guidelines for resuscitation 2015 emphasizes the importance in CPR providers paying attention to AED voice/visual prompts in order to improve CRP quality. In addition, it is recommended to use biphasic waveform when defibrillating and first shock should be at least 150 J, but there is no evidence in this field. This study does not support those recommendations.

Conclusions

No difference in ROSC upon hospital admission or in 30-day survival was detected according to AED feedback mechanism, shock waveform or energy level.

Table 1

Out-of-hospital cardiac arrest, with an AED applied prior to ambulance arrival, in The Capital Region of Denmark, from October 27 2011 through October 26 2014.

AED: Automated External Defibrillator, AV: Audio Visual, IQR: Inter Quartile Range, CPR: Cardiopulmonary Resuscitation.

	AEDs with AV-feedback (n=62)*	AEDs without AV-feedback (n=134)*	p Value
Age, median (IQR), y	66(49 – 76)	69(58 – 81)	0.10
Men, n (%)	41(66.1)	87(64.9)	1
Public Location, n (%)†	37(80.4)	80(86.9)	0.32
Response Time, median (IQR), min‡	6(5 – 8)	7(5 – 9)	0.39
Bystander Witnessed, n (%)	39(73.6)	73(72.3)	1
Bystander CPR, n (%)	53(100)	95(94.1)	0.09
Shockable Rhythm, n (%)‡	30(48.4)	64(47.8)	1

*Number of patients with missing value for the cardiac arrest-related variables: Bystander Witnessed, Bystander CPR and Public Location n=9 and n=33.

† Public Location defined as all areas accessible to the general public all hours all day.

‡ Interval between call to the EMS and ambulance arrival.

‡ First monitored rhythm.

Table 2

Outcome in out-of-hospital cardiac arrest patients, with an AED applied prior to ambulance arrival, The Capital Region of Denmark, from October 27 2011 through October 26 2014.

AED: Automated External Defibrillator, AV: Audio Visual, ROSC: Return Of Spontaneous Circulation.

	AEDs with AV-feedback (n=62)	AEDs without AV-feedback (n=134)	p Value
ROSC at Hospital Admission, n (%)			
<i>All Rhythm (n=196) †</i>	34(55%, 95% CI [43 - 67])	72(54%, 95% CI [45 - 62])	1
<i>Shockable Rhythm (n=94) †</i>	24(80%, 95% CI [62 - 91])	50(78%, 95% CI [67 - 87])	1
<i>Non-Shockable Rhythm (n=102)</i>	10(31%, 95% CI [18 - 49])	22(31%, 95% CI [22 - 43])	1
30-day Survival, n (%)			
<i>All Rhythm (n=194) †*</i>	24(39%, 95% CI [28 - 51])	53(40%, 95% CI [32 - 49])	0.88
<i>Shockable Rhythm (n=92) †*</i>	4(13%, 95% CI [12 - 58])	12(17%, 95% CI [10 - 30])	0.77
<i>Non-Shockable Rhythm (n=102)[‡]</i>	20(67%, 95% CI [49 - 81])	41(66%, 95% CI [54 - 77])	1

† All Rhythm: ventricular fibrillation, pulseless ventricular tachycardia, asystole or pulseless electrical activity.

‡ Shockable Rhythm: ventricular fibrillation or pulseless ventricular tachycardia.

* Non-Shockable Rhythm: asystole or pulseless electrical activity.

[‡] 2 patients with missing Civil Registration Number.

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Titel

Potential of on-scene se-S100B value in prehospital decision-making on TBI patients

Introduction

The biomarker S100B is used as a diagnostic tool for traumatic brain injury (TBI) and part of the Scandinavian guidelines on mild-moderate TBI. Levels are detectable in peripheral blood within 15 min. In-hospital studies have proven low se-S100B to rule-out intracranial lesions in 30% of adult mild TBI patients. As for now, S100B is limited to support in-hospital decision-making. This study aimed to explore the potential of on-scene S100B values in prehospital decision-making.

Methods

A cross-sectional survey with a questionnaire comprising 10 cases on mild TBI patients (GCS 14-15) was conducted June 2016 using REDCap® tools. Following a written introduction to S100B and guidelines, prehospital physicians (n=133) in Central Denmark Region were invited to answer closed-ended questions regarding triage pre and post disclosure of S100B value. Summary statistics and McNemars test were performed using STATA®.

Preliminary Results

Response rate was 91%. Median experience as anaesthesiologist was 6y (IQR 2 – 14) and as prehospital doctor 5y (IQR 2 – 9). 97% had little or no knowledge of S100B and 2% had used S100B for rule-out of intracranial lesions. In 8 cases, a significant difference in decision on triage was observed pre and post disclosure of S100B value ($p = 0.0001$). Smallest difference observed was in a case (Q4) involving a young female with alcohol intoxication (mean pre 6% (95%CI 2 – 12%) vs. post 27% (95%CI 19 – 35 %)). Largest difference observed was in a case (Q1) regarding a healthy adult male (mean pre 16% (95%CI 10-24 %) vs. post 66% (95%CI 56 – 74%)). 1 case (Q8) regarding a healthy male on a mountain bike showed no significant difference (mean pre 26% (95%CI 19 – 35%) vs. post 33% (95%CI 24 – 42%)) and 1 case (Q10) had to be excluded due to a design, which may have led to misinterpretation.

Discussion

Respondents had limited experience with S100B and was not routinely using the marker as a diagnostic tool. Despite this fact, after given a brief introduction, the doctors considered the S100B values when evaluating patient cases. If in-hospital results are transferable to the prehospital setting and necessary technology can provide a safe and sensitive point-of-care analysis, such test may have a role in prehospital triage and decision-making.

Conclusion

Knowledge on S100B as a diagnostic marker among prehospital physicians is scarce. Physicians included S100B values in the decision-making regarding mild TBI patients when presented. A point-of-care device for S100B testing may have potential of improving prehospital triage of TBI patients.

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Titel The effect of CT scanners in the trauma room – an observational study

Background

A computed tomography scanner integrated with the trauma resuscitation bay reduces the need for patient transfers, and may enable faster scanning of trauma patients.(1) The aim of this study was to investigate, whether placing two mobile CT scanners in the trauma resuscitation room was associated with shorter time to first CT scan in patients admitted to a trauma centre.

Methods

This was a retrospective study conducted at a level 1 equivalent trauma centre. We compared time to first CT scan in trauma patients admitted in two one-year periods, before and after a major rebuilding of the trauma resuscitation room. Prior to the reconstruction, one CT scanner was located adjacent to the trauma resuscitation room. During the reconstruction, two mobile CT scanners were incorporated in the trauma resuscitation bay. Subgroup analyses on patients with an injury severity score (ISS) above 15 and patients with traumatic brain injury were performed. Secondary outcomes included time to urgent surgery and 30-day mortality.

Results

We included 1526 trauma patients, 784 patients before and 742 after the reconstruction. Case mix differed in the two time periods; patients were significantly older and had a higher proportion of severe injuries, traumatic brain injury and penetrating trauma in the after period. We found a minor but statistically significant increase in median time to CT in the after period (21 vs. 20 minutes, $p=0.008$). The Hodges-Lehman estimate of this difference was 1 minute (95% CI: 0-2 minutes). In a multivariate regression analysis adjusted for differences in case mix and with time to CT as outcome, time period was not a significant explanatory variable (β : 0.96 min, 95% CI: 0.9-1.02, $p=0.3$). In patients with $ISS>15$ or traumatic brain injury, we found no significant differences in time to CT. We found no significant differences in time to urgent surgery or 30-day mortality.

Conclusion

Availability of mobile CT scanners at the trauma resuscitation bay was not associated with a reduction in time to CT scan when compared to having a CT scanner next to the trauma room. The findings were consistent across patients with ISS above 15 or traumatic brain injury.

References

1) Saltzherr TP, Bakker FC, Beenen LF, Dijkgraaf MG, Reitsma JB, Goslings JC. Randomized clinical trial comparing the effect of computed tomography in the trauma room versus the radiology

Abstract 34

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Titel Utilsigtede hændelser i ambulancetjenesten

BAGGRUND

Det præhospitale miljø er et potentielt højrisikoområde for utilsigtede hændelser (UTH'er) indenfor sundhedssektoren. Trods dette, findes der kun få studier på området. Rapportering og analyse af UTH'er er en internationalt anbefalet metode til at øge patientsikkerheden – både på hospitalet men også præhospitalet.

I 2011 indførte Danmark et lovpligtigt, ikke-sanktionerende UTH-rapporteringssystem for det præhospitale område, som ligeledes tilbød rapportøren anonymitet.

Baseret på indrapporterede UTH'er ønsker dette studie at beskrive 2 års UTH'er fra ambulancetjenesten i Region Hovedstaden, Danmark.

METODE

Der blev indsamlet samtlige UTH-rapporter fra Region Hovedstadens præhospitale område i perioden 2013-2014 fra Dansk Patientsikkerheds Database. Alle UTH'er, som var sket i direkte relation til ambulancetjenesten (dvs. ambulancer og akutlægebiler) blev inkluderet. Ud fra rapporternes primære emne blev UTH'erne klassificerede efter 14 kategorier. Rapportørernes faggruppe samt hændelsesstedet blev også registreret.

RESULTAT

I perioden 2013-2014 blev der indrapporteret 261 UTH'er om Region Hovedstadens ambulancetjeneste sv.t. 1 rapportering per 1400 patientkontakter.

Hovedparten omhandlede "Udstyr" (n = 77; 30 %), "Organisering af beredskab" (n = 40; 15 %), "Præhospitalet behandling" (n = 35; 13 %), "Medicin" (n = 31; 12 %) og "Interhospital transport" (n = 21; 8 %). UTH'erne var hyppigst indrapporterede af ambulancepersonalet selv (n = 152; ca. 58 %) eller sygeplejefagligt personale på hospitalerne (n = 76; 29 %). UTH'erne fandt overvejende sted i ambulancerne (n = 222; 85 %) sammenlignet med akutlægebilerne (n = 30; 12 %) – dog uden man så en statistisk signifikant forskel (p = 0,49).

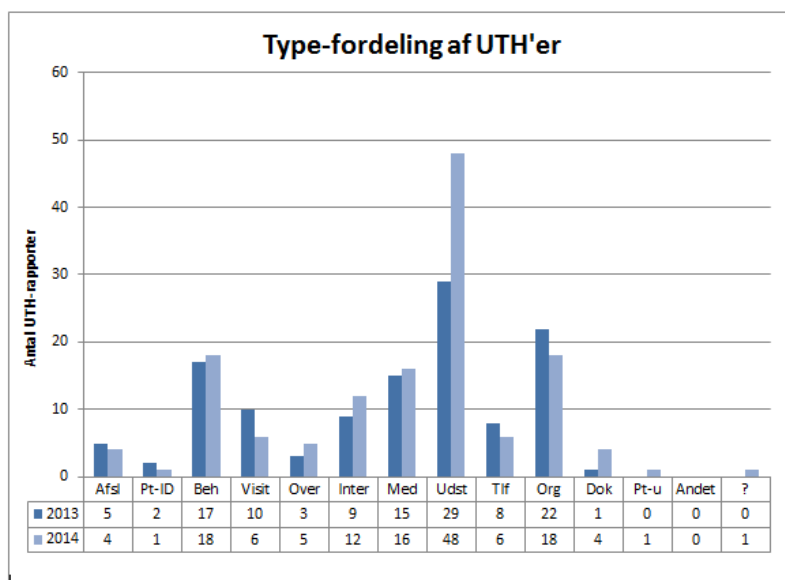
DISKUSSION

Det danske rapporteringssystem er unikt, og data af lignende kvantitet og kvalitet ses ikke internationalt. Dog er resultaterne baseret på et lokalt klassifikationssystem uden international konsensus, og risikoen for rapporteringsbias eksisterer fortsat trods lovpligtig rapportering.

En fælles terminologi og enighed om anvendelse af ét verificeret klassifikationssystem savnes på verdensplan.

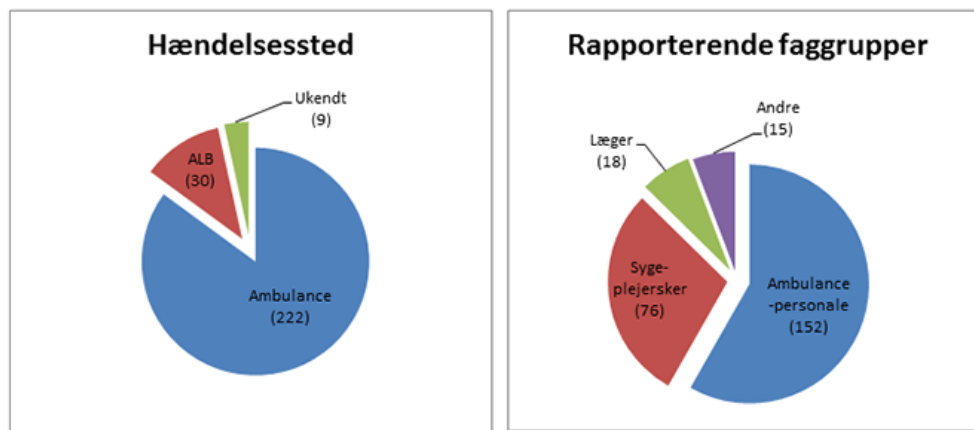
KONKLUSION

I løbet af 2 år er der blevet indrapporteret 261 UTH'er fra Region Hovedstadens ambulancetjeneste. Størstedelen af UTH'erne omhandler fejl og mangler på udstyr. Det var hovedsageligt ambulancepersonale, som indrapporterede UTH'erne, og der var ingen statistisk signifikant forskel mellem ambulancen og akutlægebilen som hændelsessted. Aktuelt er international sammenligning af data ej mulig.



Figur 1 – UTH'er fordelt på emner

Afsl = Afslutning på skadestedet; Pt-ID = Patient-identifikation; Beh = Præhospitalet behandling (generelt); Visit = Visitation til hospital; Over = Overgang til/fra hospitalet; Inter = Interhospital transport; Med = Medicin og medicinsk behandling; Udst = Udstyr/apparatur/IT/køretøjer; Tif = telefonisk rådgivning; Org = Organisering af beredskabet; Dok = Dokumentation; Pt-u = Patient-uheld; ? = Ukendt.



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General Practitioners requesting emergency response - An evaluation of the communication between the medically trained personal at the dispatch central and the General practitioners in the Region of Southern Denmark

Background

When the general practitioners (GP) request an emergency response their calls are transferred to the medical trained personal (MTP) at the dispatch central who then interview the GP and prioritize the response needed. There is currently no data evaluating the communication between the GPs and the MTP at the dispatch central.

Method

A retrospective study based on evaluation of calls where GPs request emergency response including ambulance and if needed the mobile emergency care unit (MECU). The inclusion period was three representative months; January, July and December of 2014 and a total of 1926 calls were evaluated. 1334 calls were included for further evaluation according to specific parameters, and analysed using Eric Berner's model for transactional analysis. Calls with communication issues and insufficient information were evaluated by two authors independently.

Results

We found communicative problems in less than 2% (n=25) of the evaluated calls. In 4% (n=51) of the calls the GP delegated the call to a secretary or nurse, and we found these calls were more likely to end with communicative problems (OR 5.1). Transactional analysis showed that the MTP talked in a condescending manner to the caller in 68% of the calls with communicative problems. In 18% (n=236 out of 1334) of the cases there were not sufficient information to assess if the MECU should be dispatched. Of the 236 cases the GP did not have the information needed in 18% of the cases and in 72% the MTP did not ask the relevant questions to determine if the MECU should be dispatched.

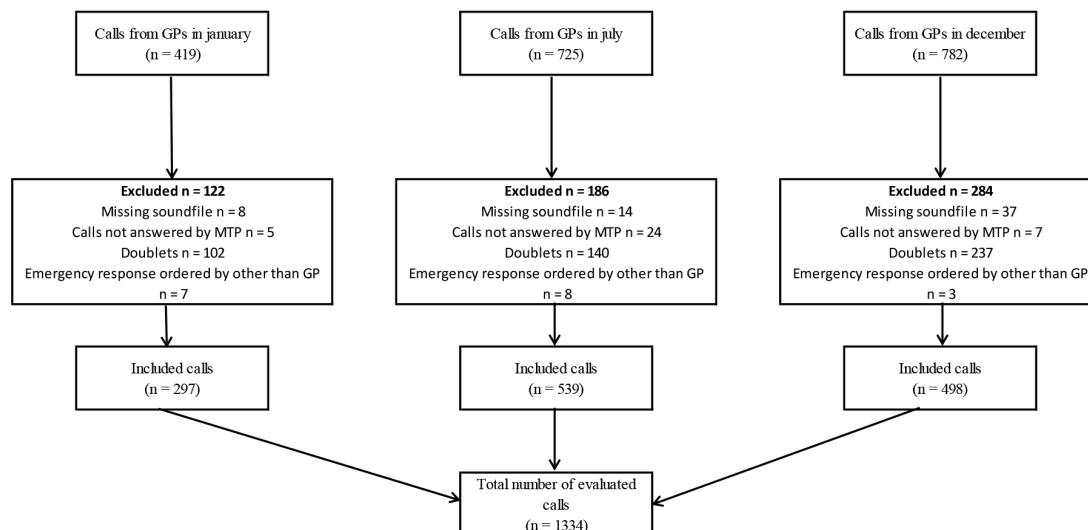
Conclusion

Communicative problems occur in less than 2% of the calls. Problems are more frequent when the GP delegates the call to e.g. a secretary or nurse. We found that the communicative problems often were initiated by the MTP who talked in a condescending manner to the caller.

Tabel 1. Communication

All calls Substitute caller/GP	Communication problems Substitute caller/GP	Odds ratio	95% CI	P-value
21/1262	4/47	5.1	1.7 – 15.5	0.004

GP: general practitioners



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Uddannelsesmæssig status for præhospitale akutbilslæger i Region Midtjylland.

Et opfølgende studie.

Introduktion

I 2009 kom præhospital og Akutmedicinsk udvalg under DASAIM med en beskrivelse af fagområdet den præhospitale indsats, indeholdende forslag til uddannelse hos akutbilslægerne. De foreslåede krav var, at man skulle være speciallæge i anæstesi, samt have gennemgået en række vejledende kurser. (Advanced Trauma Life Support; PreHospital Trauma Life Support; Advanced Life Support; European Pediatric Life Support og Safe Transfer and Retrieval, eller tilsvarende kurser) I 2010 undersøgte vi om akutbilslægerne i Region Midtjylland (RM) opfyldte disse krav, og resultatet var at uddannelsesniveaulet var højt, men noget fra at opfylde DASAIMs krav til supplerende uddannelse. Formålet er at undersøge akutbilslægerne i RM uddannelsesmæssige status, og om vi er kommet nærmere disse foreslåede krav.

Metode

Alle 132 akutbilslæger i RM i 2015 pr. mail bedt om at oplyse, hvornår de blev speciallæge, præhospital erfaring, relevante kurser og anden relevant uddannelse.

Resultater

128 læger svarede. Alle var speciallæge i anæstesi.

Tabel 1: Erfaringsgrundlag i år

Gennemsnit 2015/Gennemsnit 2010

Anæstesierfaring 8,44 (1-28)/17,5 (7-33)

Præhospital Erfaring 8,52 (1-31)/7,0 (5-30)

Tabel 2: Kurser

Antal (procent) 2015/Procent 2010

PHTLS 97 (75,8)/35,3

ATLS 108 (84,4)/78,4

ALS 84 (65,6)/49

EPLS 41 (32)/ 19,6

24,2% af akutbilslægerne har 4 kurser (STaR ikke medregnet)

Diskussion

I Danmark er arbejdet som præhospital læge hyppigt på konsulent basis, dvs. de fleste læger er ansat på en anæstesiologisk afdeling og arbejder derudover på akutlægebilen. Dette sikrer høje faglige anæstesiologiske færdigheder, f.eks. intubation, vurdering af kritisk syge, af traumepatienter og anæstesi til børn. Til gengæld kan de præhospitalt færdigheder være svære at opretholde, idet flowet af de stressfyldte og akutte situationer ikke er hyppige. Andelen af læger, der har deltaget i de anbefalede kurser, specielt PHTLS, er steget siden 2010, desuden har SSAI nu en uddannelse i Emergency Critical Care. Dog er kurserne og SSAI uddannelsen dyre, hvilket besværliggør tilgangen til dem. Om kravene til supplerende uddannelse er forældede, kan man jo altid diskutere. Om den enkelte akutbilslæge bliver bedre til at vurdere f.eks. en dårlig patient, hvis man har været på kurserne, sammenlignet med års erfaring som speciallæge i anæstesi, vides reelt ikke. Man kan overveje om kravene skal ændres eller om der skal mere fokus på at akutbilslægerne får den supplerende uddannelse, som anbefales fra DASAIM.

Konklusion

Det faglige niveau er generelt højt hos RMs akutbilslæger, dog er speciallægeerfaringen halveret mens den præhospitalt erfaring i uændret. Niveaue er dog stadig noget fra DASAIM's forslag til supplerende uddannelse.

Reference

<http://www.dadlnet.dk.ez.statsbiblioteket.dk:2048/master/kunder/dokument/m742/u723/præhospital-APRIL-09.pdf>

Referencer:

<http://www.dadlnet.dk.ez.statsbiblioteket.dk:2048/master/kunder/dokument/m742/u723/præhospital-APRIL-09.pdf>

L. Rognås, TM Hansen, *EMS-physicians' self reported airway management training and expertise; a descriptive study from the Central Region of Denmark*, Scand. J Trauma Emerg Med. 2011 Feb 8; 19:10
doi 10.1186/1757-7241-19-10

Tabel 1

Erfaringsgrundlag i år hos akutbilslægerne

	Gennemsnit (min-max) 2015	Gennemsnit (min-max) 2010
Anæstesierfaring	8,44 (1-28)	17,5 (7-33)
Præhospital Erfaring	8,52 (1-31)	7,0 (5-30)

Tabel 2

Akutbilslæger som har deltaget i de adspurgte kurser

Kursus	Antal (procent) 2015	Antal (procent) 2010
PHTLS	97 (75,8)	18/51 (35,3)
ATLS	108 (84,4)	40/51 (78,4)
ALS	84 (65,6)	25/51 (49)
EPLS	41 (32)	10/51 (19,6)

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Titel

Location of cardiac arrest and impact of chronic disease and medication on survival

Introduction

Cardiac arrest in a private location is associated with a higher mortality when compared to public location. Past studies have

adjusted for cardiac arrest-related factors e.g. first recorded rhythm, witnessed arrest and bystander cardiopulmonary resuscitation. However, they have failed to adjust for patient-related factors such as chronic disease and medication that may also impact survival.

Aim

To investigate the association between the location of cardiac arrest and mortality and whether this association can be explained by a difference in the prevalence of chronic disease and medication.

Methods

We identified 27,771 out-of-hospital cardiac arrest patients ≥18 years old from the Danish Cardiac Arrest Registry (2001–2012). Using National Registries, we identified chronic disease (within 10 years before arrest) and medication (< 180 days before arrest). Missing data was handled by multiple imputation. To investigate the importance of cardiac arrest-related factors and patient-related factors (chronic disease and medication) we performed stepwise adjusted Cox regression analysis divided into day 0-7 and day 8-365-hazard ratios (HR) for death. To confirm findings from the fully adjusted Cox regression model we also performed propensity score matching.

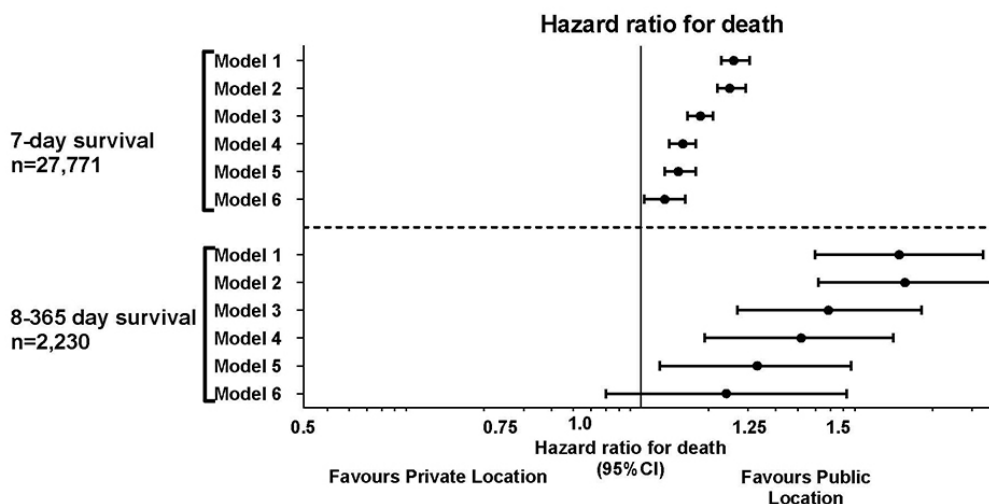
Results

Patients with cardiac arrest in a private location were older 72 years (IQR 61-81) vs. 67 years (IQR 55-78) and characterized by a lower proportion of witnessed collapse (46% vs. 62%), shockable rhythms (17% vs. 35%), bystander CPR (32% vs. 53%), AED use (0.7% vs. 4.1%) and longer time from recognition of arrest to first rhythm analysis: 12 min (IQR 7-21) vs. 10 min (IQR 6-16). The cumulative risk of death day 0-7 was 94.5% (95% CI: 94.2%-94.8%) with arrest in a private location and 84.0 % (95% CI: 83.1%-84.8%) with arrest in a public location, while the subsequent cumulative risk of death day 8-365 was 29.5% (95%CI: 26.9%-32.3%) for arrest in a private location and 18.5% (95% CI: 16.3%-20.8%) for arrest in public location. The full-adjusted HR for death for arrest in private location compared to public location day 0-7 was 1.08 (95%CI: 1.05-1.12) and from day 8-365 1.27 (95% CI: 1.04-1.54)(Figure 1). This was confirmed using propensity score matching. The stepwise adjusted regression analysis revealed that cardiac arrest-related factors had the largest impact on HR both within day 0-7 and day 8-365 while adjusting for chronic disease and medication only changed the HR from day 8-365 (Figure).

Conclusion

Mortality following cardiac arrest in a private location is higher when compared to cardiac arrest in a public location. This is primarily related to cardiac arrest-related factors while chronic disease and medication use only affect mortality from day 8-365.

Figure



Stepwise Cox regression analysis to investigate the importance of cardiac arrest-related factors and patient-related factors.

- Model 1: Unadjusted
- Model 2: Adjusted for age, gender, calendar year, month of arrest, marital status and household income
- Model 3: Adjusted for factors above + witnessed-status, bystander CPR, AED-use and estimated time interval from recognition of cardiac arrest to rhythm analysis by ambulance crew
- Model 4: Adjusted for factors above + first recorded heart rhythm
- Model 5: Adjusted for factors above + chronic disease and medication
- Model 6: Propensity score adjusted analysis