DANISH HEAD TRAUMA DATABASE

ESTABLISHMENT OF A NATIONAL DATABASE FOR ADULT PATIENTS WITH SEVERE TRAUMATIC BRAIN INJURY

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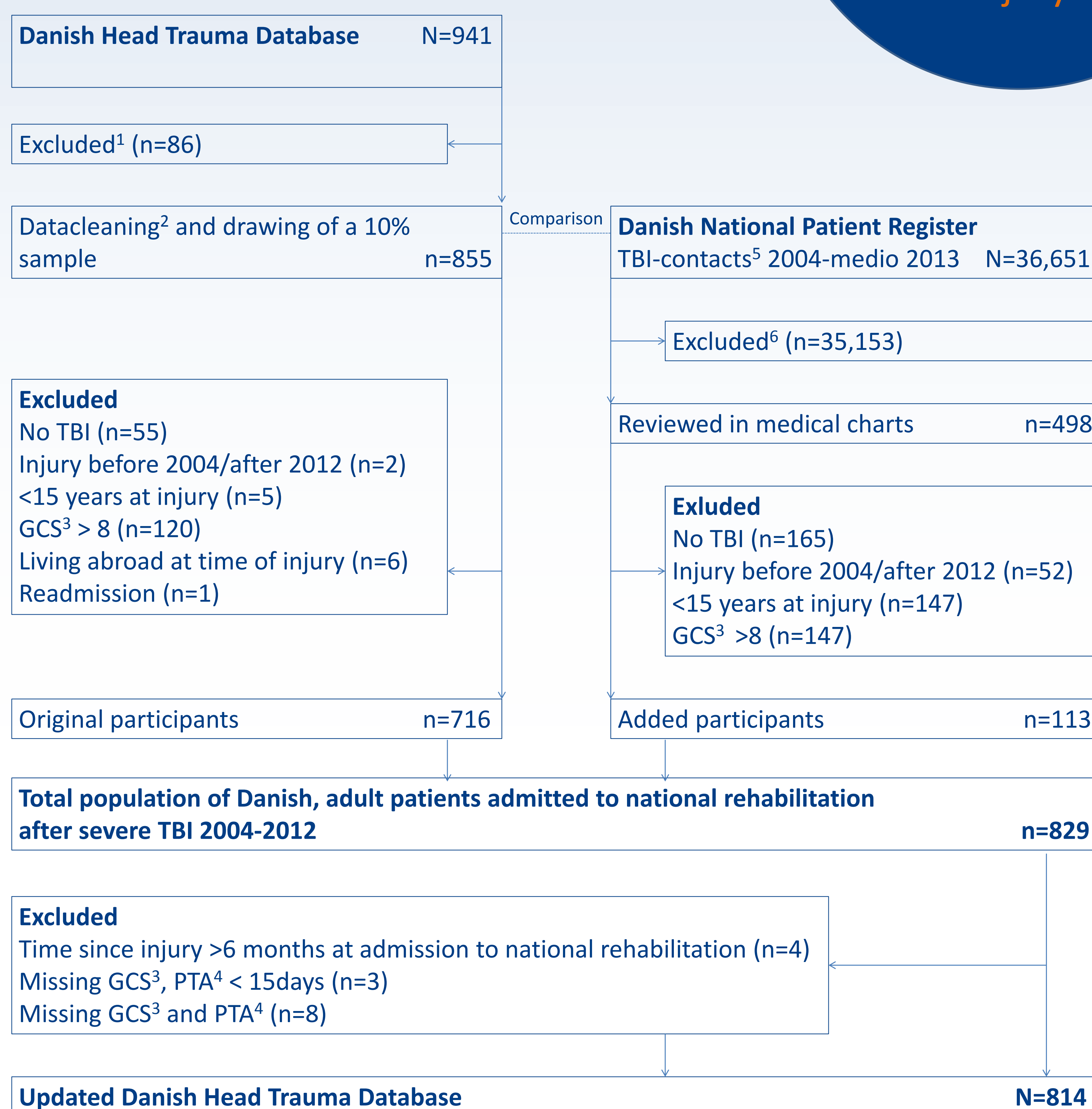1 Hammel Neurorehabilitation Center and University Research Clinic, Aarhus University, Denmark,

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Background

Problem: Existing large databases on traumatic brain injury (TBI) may lack representativeness and entail risk of selection bias due to different health care systems.

Danish Head Trauma Database (DHD) is a small database, focused on rehabilitation data. It is run by the only two national neurorehabilitation hospitals since 2004. The two hospitals serve all Danish, adult patients surviving severe TBI (Glasgow Coma Scale (GCS)<9).

Aim:
To validate Danish Head Trauma Database as a national database for severe traumatic brain injury

Flowchart: Updating the database

Danish Head Trauma Database N=941	
Excluded[1] (n=86)	
Datacleaning[2] and drawing of a 10% sample n=855	**Danish National Patient Register** TBI-contacts[5] 2004-medio 2013 N=36,651
	Excluded[6] (n=35,153)
	Reviewed in medical charts n=498
Excluded No TBI (n=55) Injury before 2004/after 2012 (n=2) <15 years at injury (n=5) GCS[3] > 8 (n=120) Living abroad at time of injury (n=6) Readmission (n=1)	**Exluded** No TBI (n=165) Injury before 2004/after 2012 (n=52) <15 years at injury (n=147) GCS[3] >8 (n=147)
Original participants n=716	Added participants n=113

Comparison

Total population of Danish, adult patients admitted to national rehabilitation after severe TBI 2004-2012 n=829

Excluded
Time since injury >6 months at admission to national rehabilitation (n=4)
Missing GCS[3], PTA[4] < 15days (n=3)
Missing GCS[3] and PTA[4] (n=8)

Updated Danish Head Trauma Database N=814

Legend
[1] Injury before 2004/No Danish CRS Number/<15years at injury
[2] Datacleaning included adding missing data and correcting errors by chart reviews
[3] Worst, unsedated score on the Glasgow Coma Scale first 48 hours after injury
[4] Length of post traumatic amnesia
[5] ICD10 Diagnoses of traumatic brain injury: DS020-DS021, DS027-DS029, DS061-DS071, DS079, DS097, DS099, DT020,, DT040, DT060
[6] Already in Danish Head Trauma Database/ No admission to national rehabilitation/ < 15 years at admission to national rehabilitation/ National rehabilitation before 2004/ outpatient at national rehabilitation

Methods

1) Agreement with charts for GCS and length of post traumatic amnesia (PTA) in a 10% sample from DHD.

2) Addition of patients not included in DHD initially through linkage between DHD and the Danish National Patient Registry followed by chart reviews (see flowchart).

3) Comparison between the updated DHD and a sample of non-participants identified in the Danish National Patient Registry followed by chart reviews.

Results and Discussion

DHD as a national database for severe TBI

GCS agreement with charts: Perfect

PTA agreement with charts: Poor. PTA-data were recollected

Fig. 1. Distribution of patients per year seem fairly constant; may indicate national completeness.

Table 1.

1) Some selection.

2) Nonparticipants more likely to be alcohol- or drug abusers; may indicate GCS<9 was more the influence of alcohol/drugs and less the influence of severe TBI among some non-participants.

Fig.1. Distribution of patients per. year in the updated database

Characteristics	Patients from DHD (%) (n=814)	Sample of Nonparticipants[1] (%) (n=33)	p-value[2]
GCS			
6-8	263(34.07)	16(53.33)	0.05
3-5	509(65.93)	14(46.67)	
Age			
15-63	702(86.24)	22(66.67)	0.00
≥64	112(13.76)	11(33.33)	
Sex			
Female	164(20.15)	8(24.24)	0.51
Male	650(79.85)	25(75.76)	
Living alone			
Yes	288(35.38)	18(100)	0.00
Other	526(64.62)	0(0)	
Employment-/Schoolstatus			
Working /student	484(59.75)	6(22.22)	0.00
Retired[3]	185(22.84)	16(59.26)	
Other	141(17.41)	5(18.52)	
Alcohol-/Drug abuse			
Yes	206(25.31)	13(39.39)	0.10
No	608(74.69)	20(60.61)	

[1]Nonparticipants are patients not admitted to national rehabilitation despite GCS<9. The sample are patients injured 2010 or 2012 with a total length of stay in hospital>50 days.
[2]Fischers exact test
[3]Retired: early retirement included