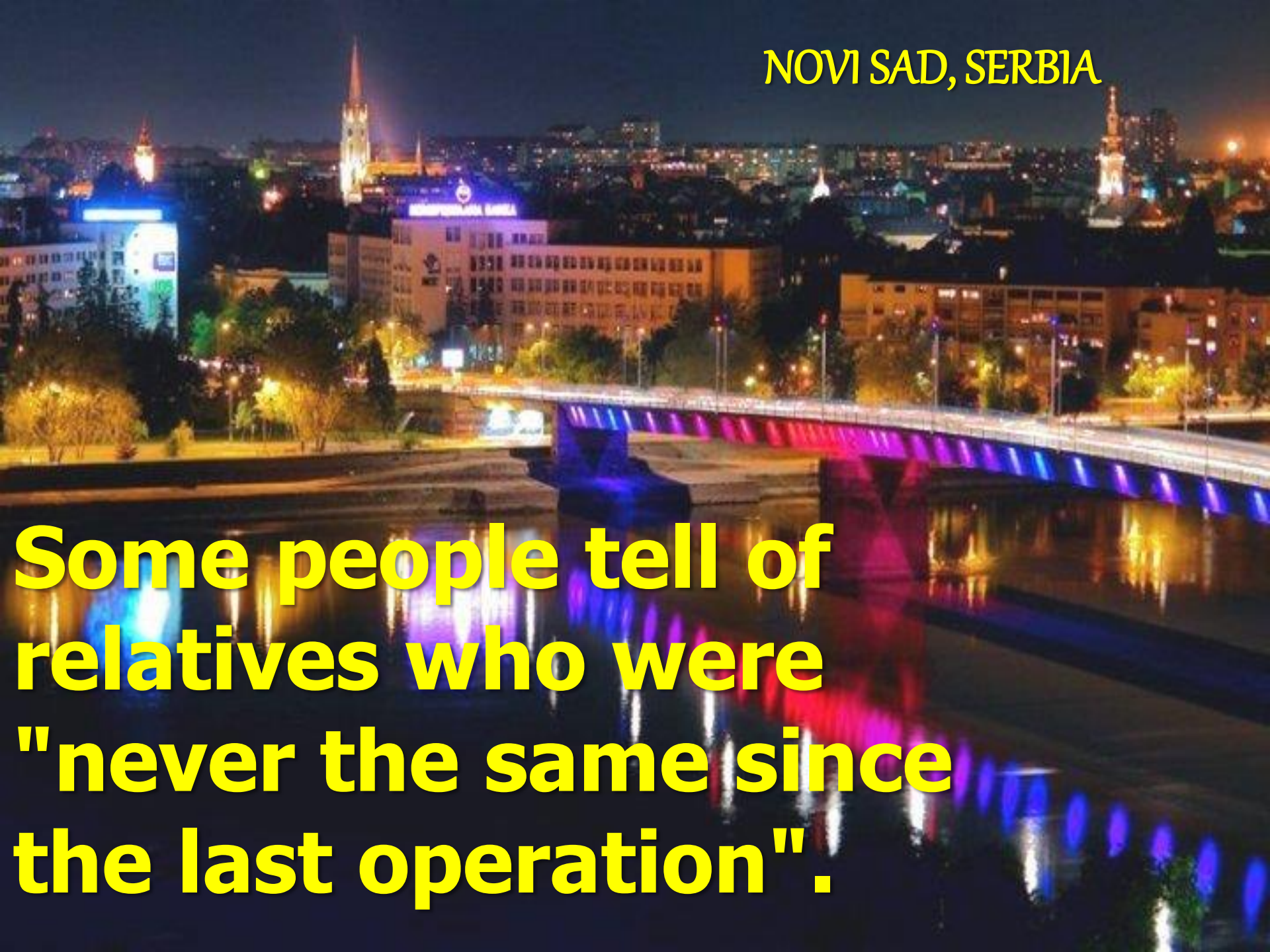
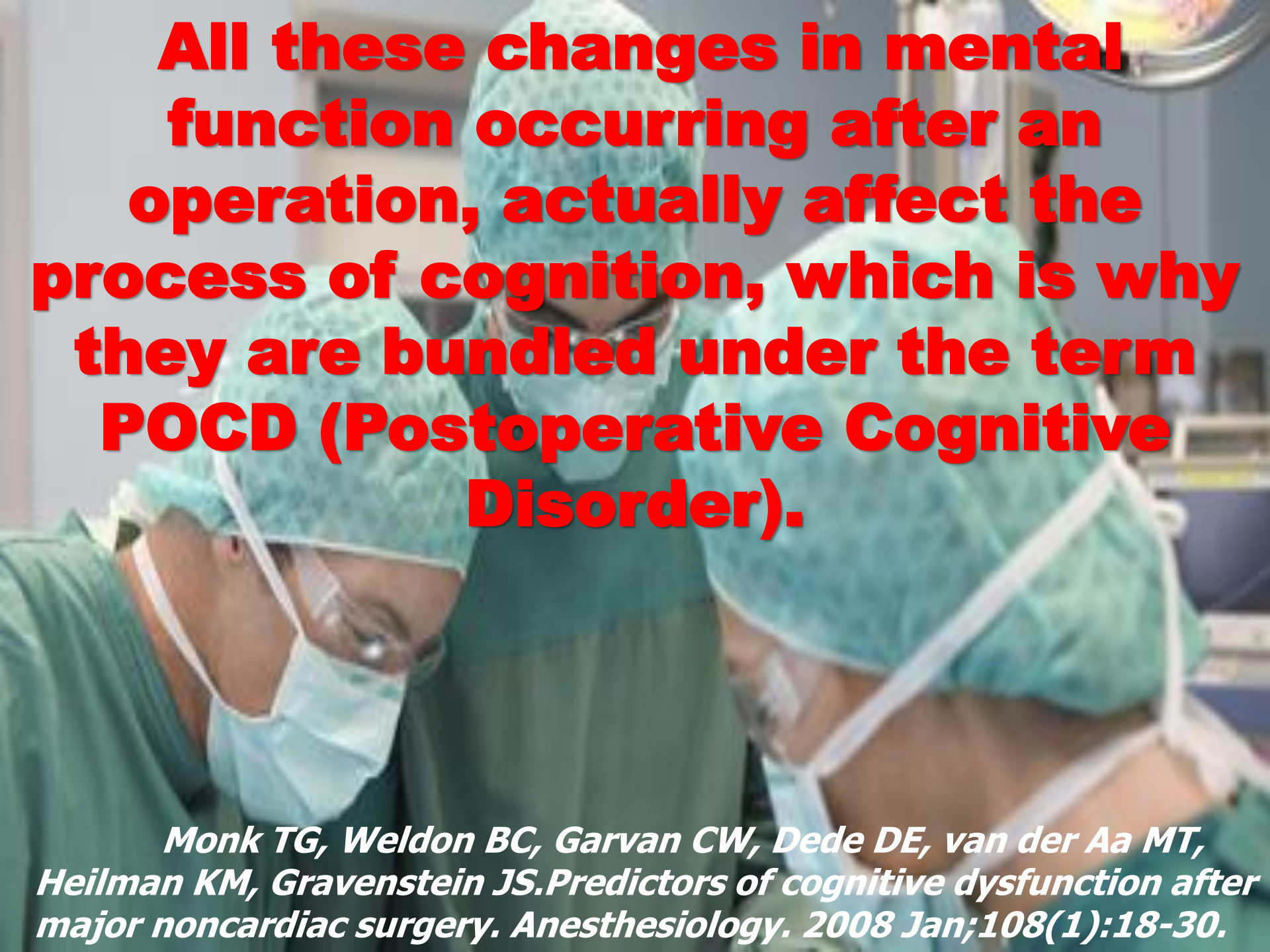
Impact of alcohol abuse after major non-cardiac surgery and postoperative cognitive dysfunction

Professor Ljiljana Gvozdenović,
Clinical Center of Vojvodina,
Medical University, Novi Sad, Serbia


NOVI SAD, SERBIA
Some people tell of relatives who were "never the same since the last operation".

Yet other people tell of personal experiences of reduced ability to concentrate, reduced attention span, and of memory problems after undergoing an operation.



All these changes in mental function occurring after an operation, actually affect the process of cognition, which is why they are bundled under the term POCD (Postoperative Cognitive Disorder).

Monk TG, Weldon BC, Garvan CW, Dede DE, van der Aa MT, Heilman KM, Gravenstein JS.Predictors of cognitive dysfunction after major noncardiac surgery. Anesthesiology. 2008 Jan;108(1):18-30.

These changes may even be so severe that some elderly people actually

become demented after undergoing an operation.

Cognitive dysfunction is common in adult patients of all ages at hospital discharge after major noncardiac surgery, but only the elderly (aged 60 yr or older) are at significant risk for long-term cognitive problems. Patients with POCD are at an increased risk of death in the first year after surgery.

Johnson, Tim F.R.C.A.; Monk, Terri M.D.†; Rasmussen, Lars S. M.D.‡; Abildstrom, Hanne M.D.§; Houx, Peter Ph.D.‖; Korttila, Kari M.D.#; Kuipers, Harrie M.**; Hanning, Chris D. M.D.††; Siersma, Volkert D. M.T.D.‡‡; Kristensen, Diana M.D.§§; Canet, Jaume M.D.‖‖; Ibañaz, Maria Teresa M.D.##; Moller, Jakob T. M.D.†††; Geda YE,* *Postoperative Cognitive Dysfunction in Middle-aged Patients.*
Anesthesiology:June 2002 - Volume 96 - Issue 6 - pp 1351-1357.

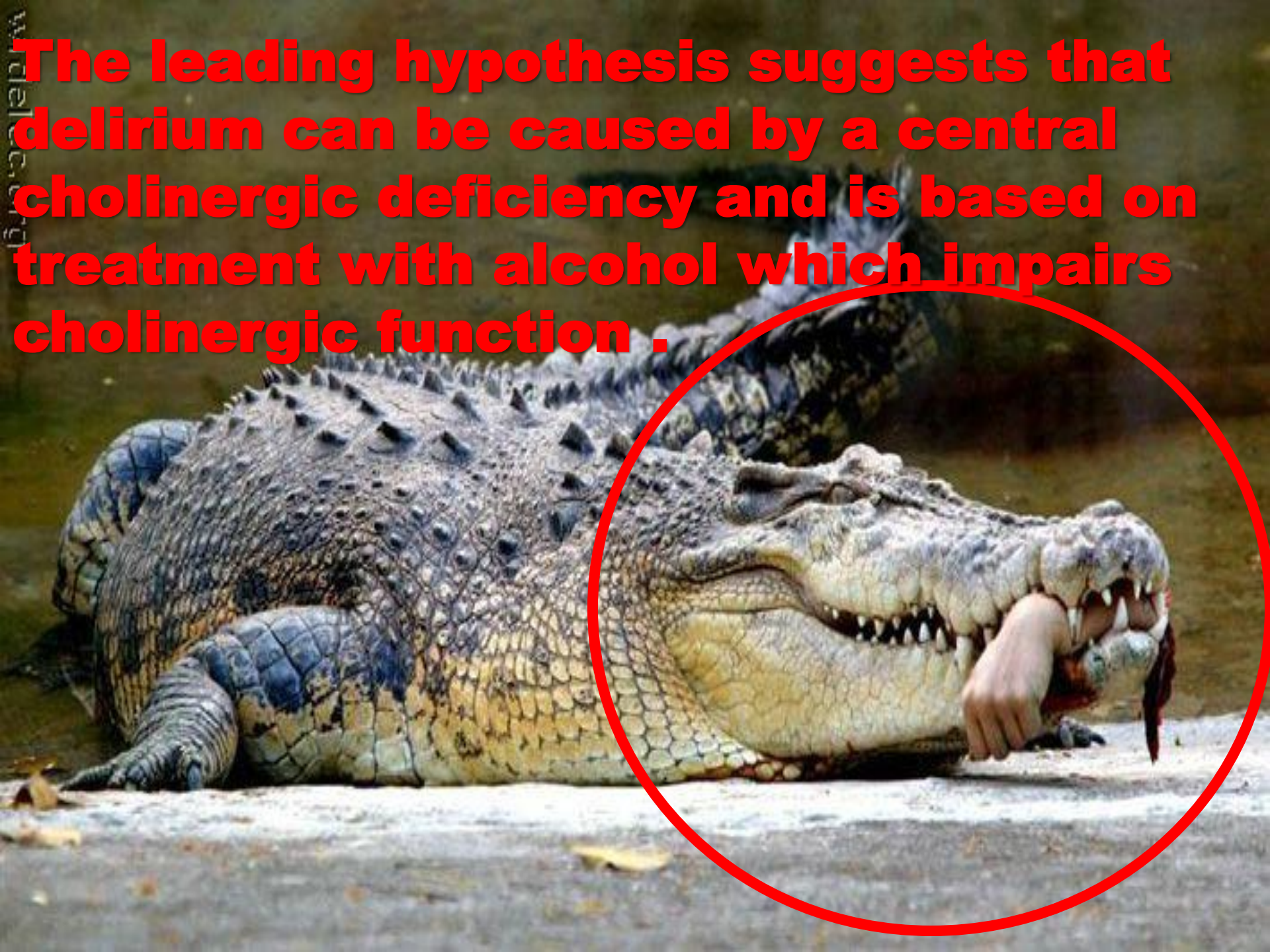
The risk factors for postoperative cognitive dyfunction (POCD) after non-cardiac surgery include advanced age, alcohol abuse and pre existing cognitive impairment.


Patients who misuse alcohol
may be at increased risk of
surgical
complications
and poorer function following
non-cardiac surgery.
ZNALEZIONE NA
WWW.JOEMONSTER.ORG

Identification and intervention may lead to harm reduction and improve the outcomes of surgery.

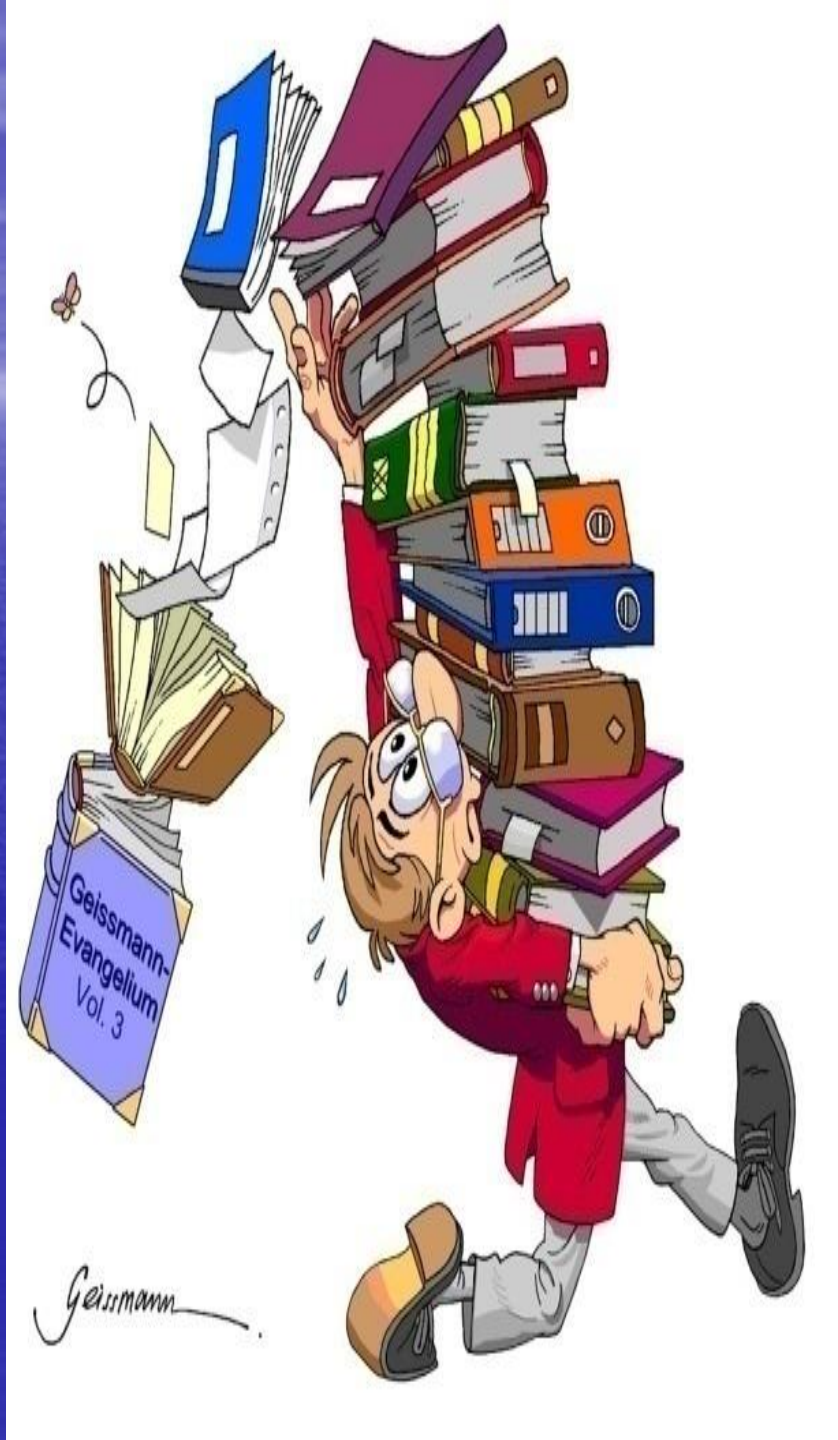
Chan MTV, Cheng BCP, Lee TMC, Gin T CODA Trial Group. BIS-guided anesthesia decreases post-operative delirium and cognitive decline. J Neurosurg Anesthesiol. 2013;25:33–42.

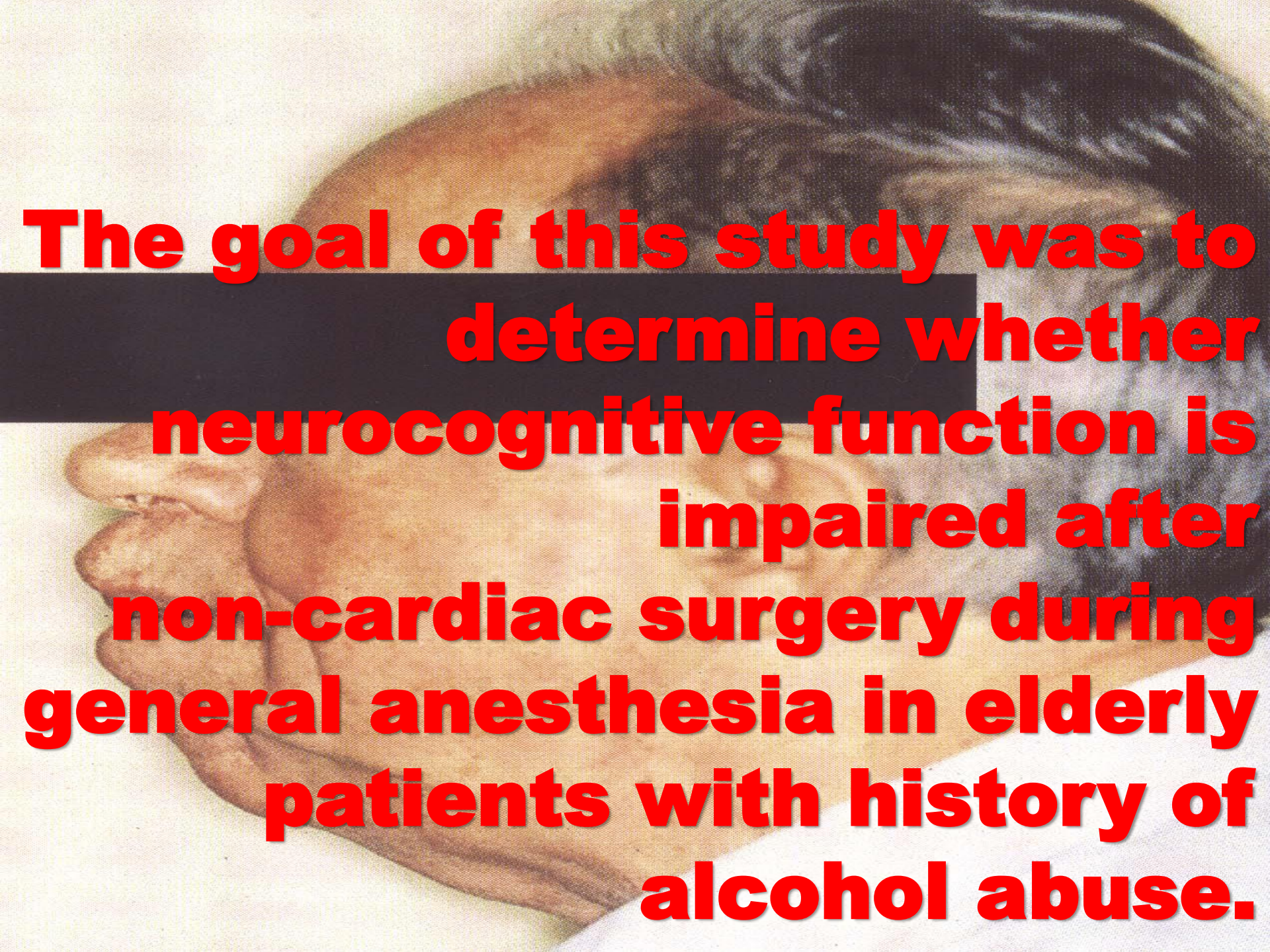

POCD, affects a significant number of patients and may have serious consequences on quality of life.
ZNALEZIONE NA
WWW.JOEMONSTER.ORG

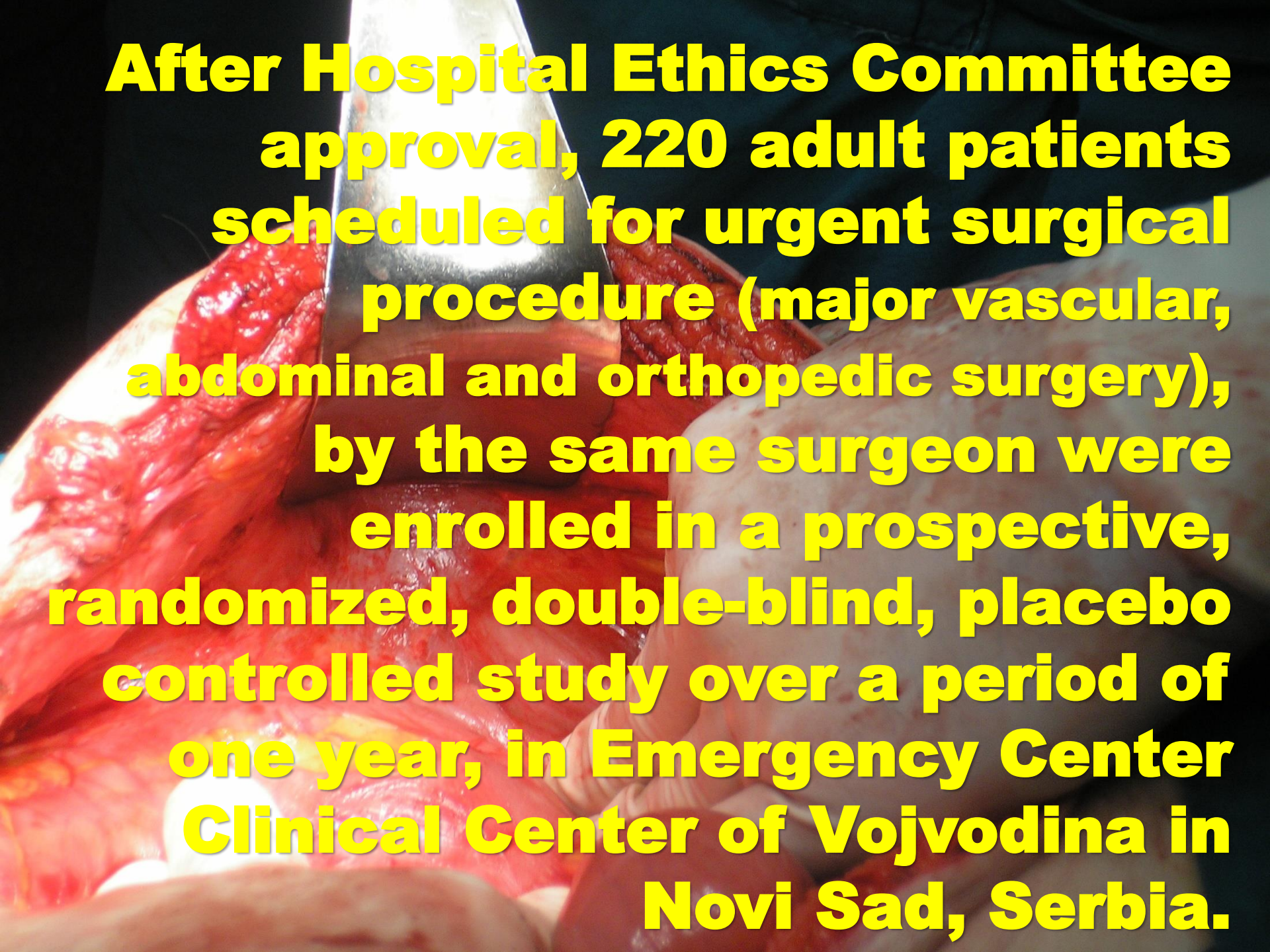

The leading hypothesis suggests that delirium can be caused by a central cholinergic deficiency and is based on treatment with alcohol which impairs cholinergic function .

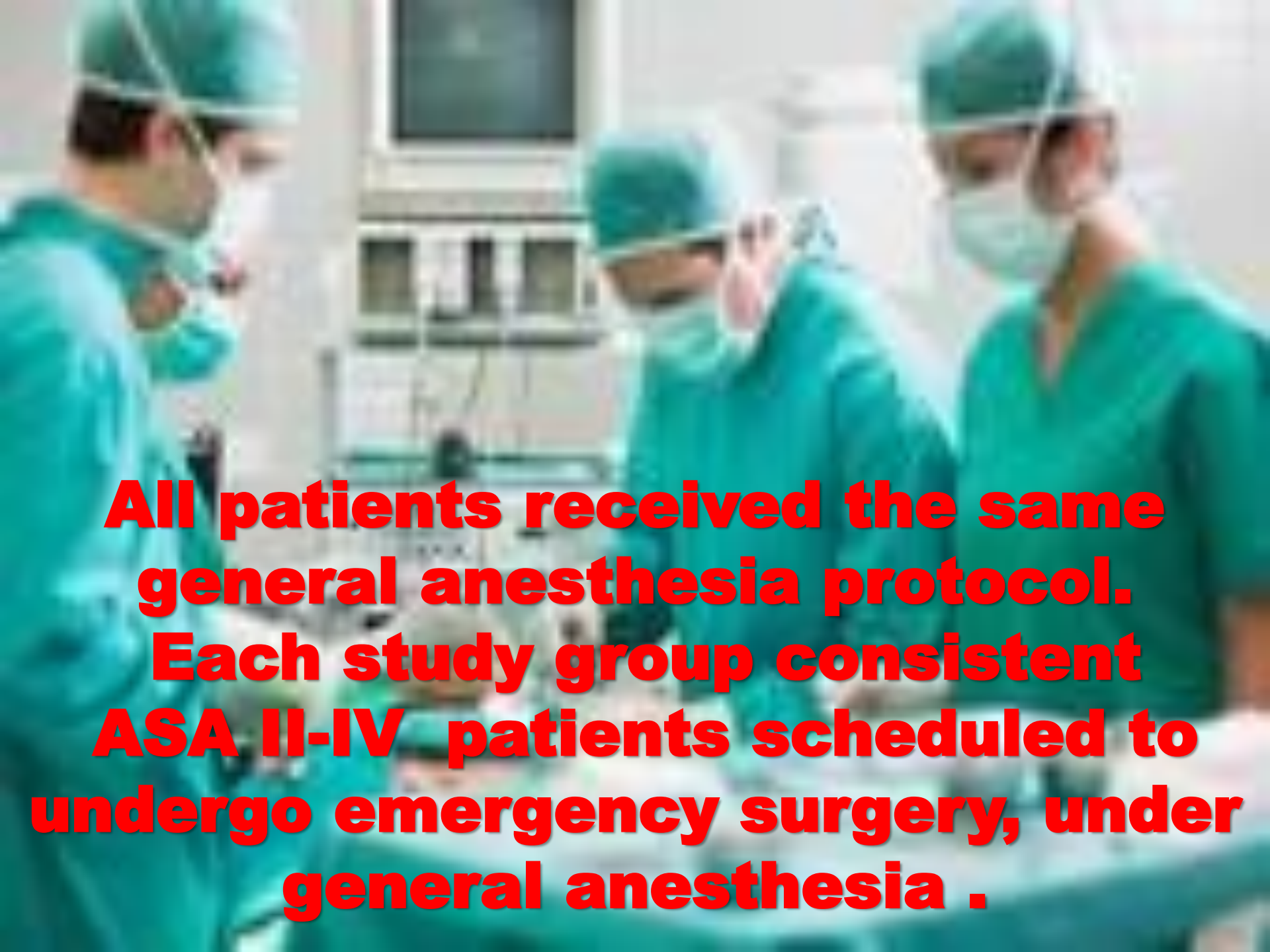
Increase of serum anticholinergic activity (SAA) levels correlates with greater number of delirium symptoms, where as SAA decrease is correlates with delirium resolution.

(Mach , 1995; Flacker, 1998; Mussi, 1999).




The goal of this study was to
determine whether
neurocognitive function is
impaired after
non-cardiac surgery during
general anesthesia in elderly
patients with history of
alcohol abuse.


After Hospital Ethics Committee approval, 220 adult patients scheduled for urgent surgical procedure (major vascular, abdominal and orthopedic surgery), by the same surgeon were enrolled in a prospective, randomized, double-blind, placebo controlled study over a period of one year, in Emergency Center Clinical Center of Vojvodina in Novi Sad, Serbia.



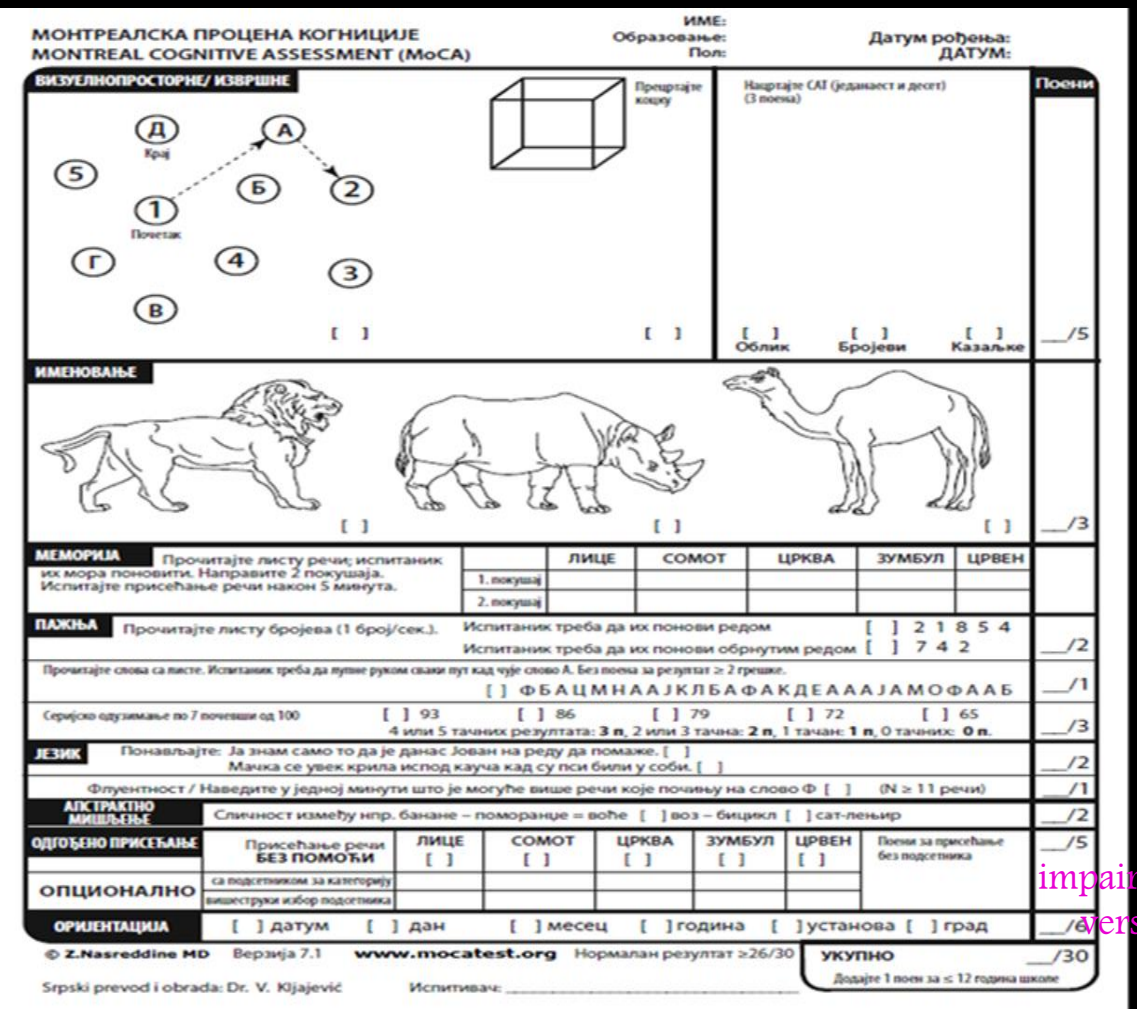
All patients received the same general anesthesia protocol. Each study group consistent ASA II-IV patients scheduled to undergo emergency surgery, under general anesthesia .


Patients were divided into
four age groups:
18-39 years, 40-59 years,
60+ years, after major surgery
and 60+ years of age,
after minor surgery .


Differences were described and highlighted certain advantages
compared to the Mini Mental State Examination.
WWW.JOEMONSTER.ORG

Montreal Cognitive Assessment (MoCA)

founded in 1996 by Dr. Ziad Nasreddin in Montreal (Canada). The Ministry of Civil Affairs issued a test on one side (30-point test) to be solved for about 10 minutes. The test is available in 35 languages and dialects.



МОНТРЕАЛСКА ПРОЦЕНА КОГНИЦИЈЕ
MONTREAL COGNITIVE ASSESSMENT (MoCA)

ИМЕ:
Образовање:
Пол:
Датум рођења:
ДАТУМ:

ВИЗУЕЛНОПРОСТОРНЕ/ ИЗВРШНЕ — Поени

Д (Крај), А, 5, Б, 2, 1 (Почетак), Г, 4, 3, В

[ ] [ ]

Прецртајте коцку

Нацртајте CAI (једанаест и десет) (3 поена)

[ ] Облик [ ] Бројеви [ ] Казаљке

___/5

ИМЕНОВАЊЕ

[ ] [ ] [ ]

___/3

МЕМОРИЈА — Прочитајте листу речи; испитаник их мора поновити. Направите 2 покушаја. Испитајте присећање речи након 5 минута.

	ЛИЦЕ	СОМОТ	ЦРКВА	ЗУМБУЛ	ЦРВЕН
1. покушај					
2. покушај					

ПАЖЊА — Прочитајте листу бројева (1 број/сек.).

Испитаник треба да их понови редом [ ] 2 1 8 5 4

Испитаник треба да их понови обрнутим редом [ ] 7 4 2

___/2

Прочитајте слова са листе. Испитаник треба да пљесне руком сваки пут кад чује слово А. Без поена за резултат ≥ 2 грешке.

[ ] Ф Б А Ц М Н А А Ј К Л Б А Ф А К Д Е А А А Ј А М О Ф А А Б

___/1

Серијско одузимање по 7 почевши од 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65

4 или 5 тачних резултата: **3 п**, 2 или 3 тачна: **2 п**, 1 тачан: **1 п**, 0 тачних: **0 п**.

___/3

ЈЕЗИК — Понављајте: Ја знам само то да је данас Јован на реду да помаже. [ ]

Мачка се увек крила испод кауча кад су пси били у соби. [ ]

___/2

Флуентност / Наведите у једној минути што је могуће више речи које почињу на слово Ф [ ] (N ≥ 11 речи)

___/1

АПСТРАКТНО МИШЉЕЊЕ — Сличност између нпр. банане – поморанџе = воће [ ] воз – бицикл [ ] сат-лењир

___/2

ОДГОЂЕНО ПРИСЕЋАЊЕ

Присећање речи БЕЗ ПОМОЋИ	ЛИЦЕ [ ]	СОМОТ [ ]	ЦРКВА [ ]	ЗУМБУЛ [ ]	ЦРВЕН [ ]	Поени за присећање без подсетника
ОПЦИОНАЛНО: са подсетником за категорију						
ОПЦИОНАЛНО: вишеструки избор подсетника						

___/5

ОРИЈЕНТАЦИЈА — [ ] датум [ ] дан [ ] месец [ ] година [ ] установа [ ] град

___/6

© Z.Nasreddine MD Верзија 7.1 www.mocatest.org Нормалан резултат ≥26/30

УКУПНО ___/30

Додајте 1 поен за ≤ 12 година школе

Srpski prevod i obrada: Dr. V. Kijajević Испитивач: _____

The test involves attention, concentration, memory, executive functions, visual structural skills, conceptualization, computing and orientation.

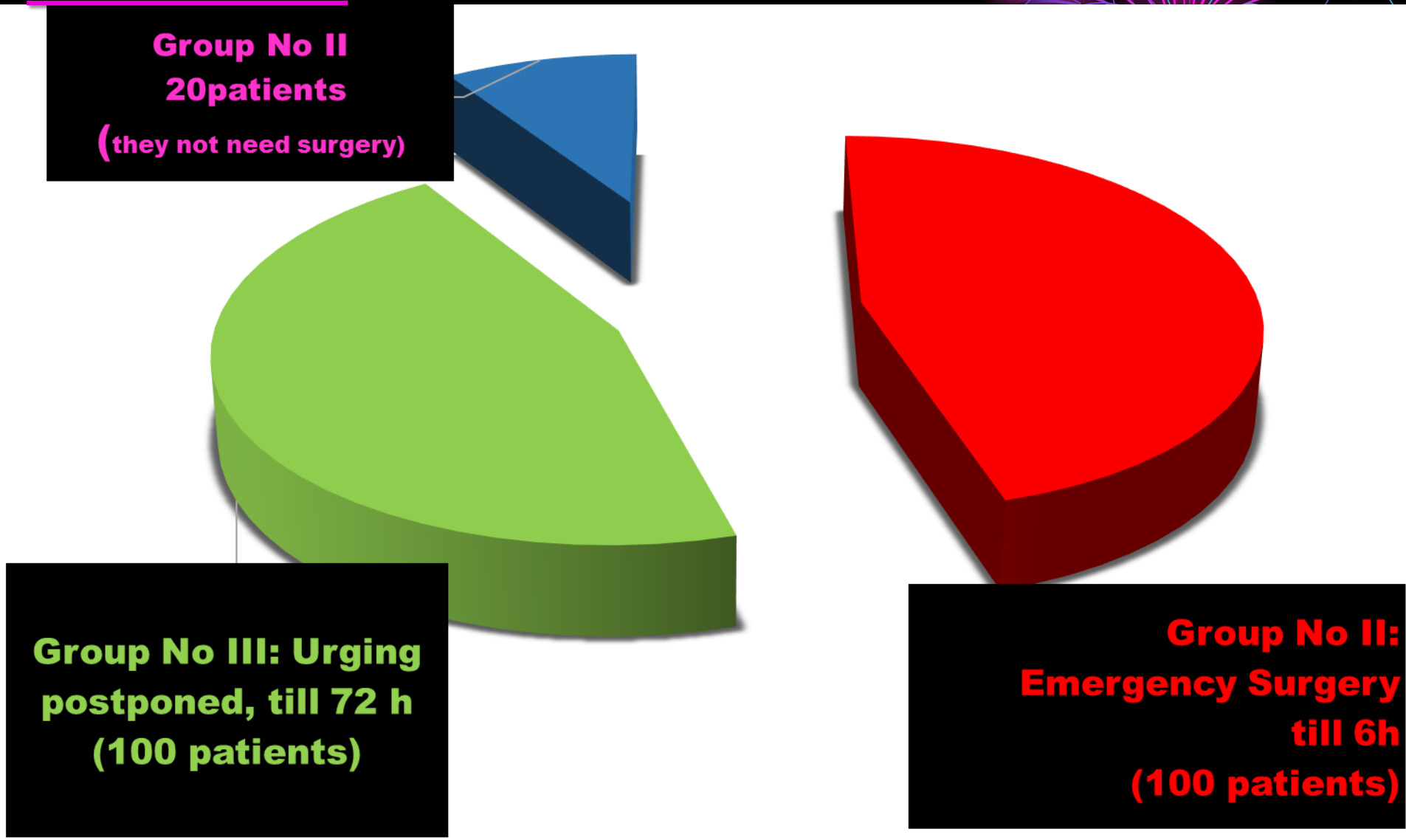
The total possible number of points is 30. The result of 26 or more points is considered normal.

Fujiwara Y. Brief screening tool for mild cognitive impairment in older Japanese: Validation of the Japanese version of the Montreal Cognitive Assessment. Geriatr Gerontol. Int. 2010;10:225-232.

Verbal memory, visuo-spatial memory, and executive functions were assessed. A neurologic examination was performed to exclude subjects with potential cerebrovascular damage.

Standard laboratory analyses were done and findings recorded.

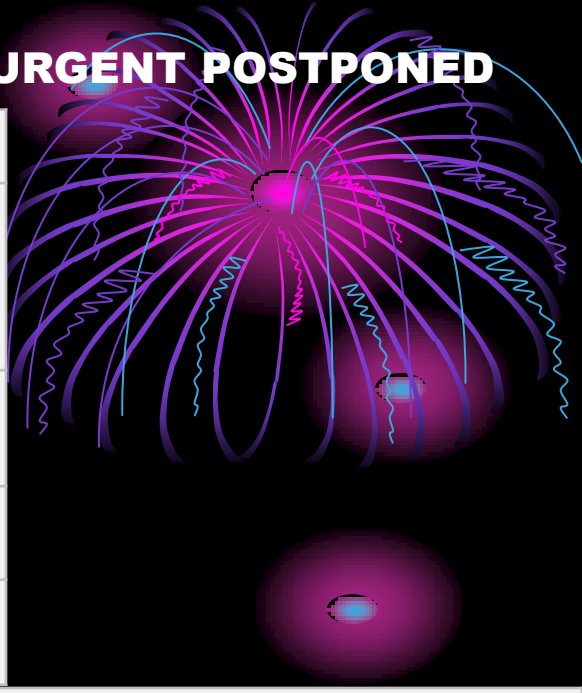
Results



Chapt No 1. The distribution of patients according to the criteria for surgery

Table No 2. Sex (In the Group URGENT , the Group URGENT POSTPONED

	Sex			
	frequency	%	Valid %	Cumulative %
M	101	50.5	50.5	50.5
F	99	49.5	49.5	100.0
Total	200	100.0	100.0	



Test Statistics

Chi-Square	.020
df	
Asymp. Sig.	.888

Pearson's χ^2 test : there are no statistical differences (χ^2=0.020, df=1, p=0.888, p>0,05).

Distribution of patients based on alcohol consumption (In the Group URGENT , the Group URGENT POSTPONED)

Table 1. Alcohol consumption

Does the patient consumes alcohol				
	frequency	%	Valid Percent	cumulative percentage
NO	32	16.0	16.0	16.0
YES	168	84.0	84.0	100.0
TOTAL	200	100.0	100.0	

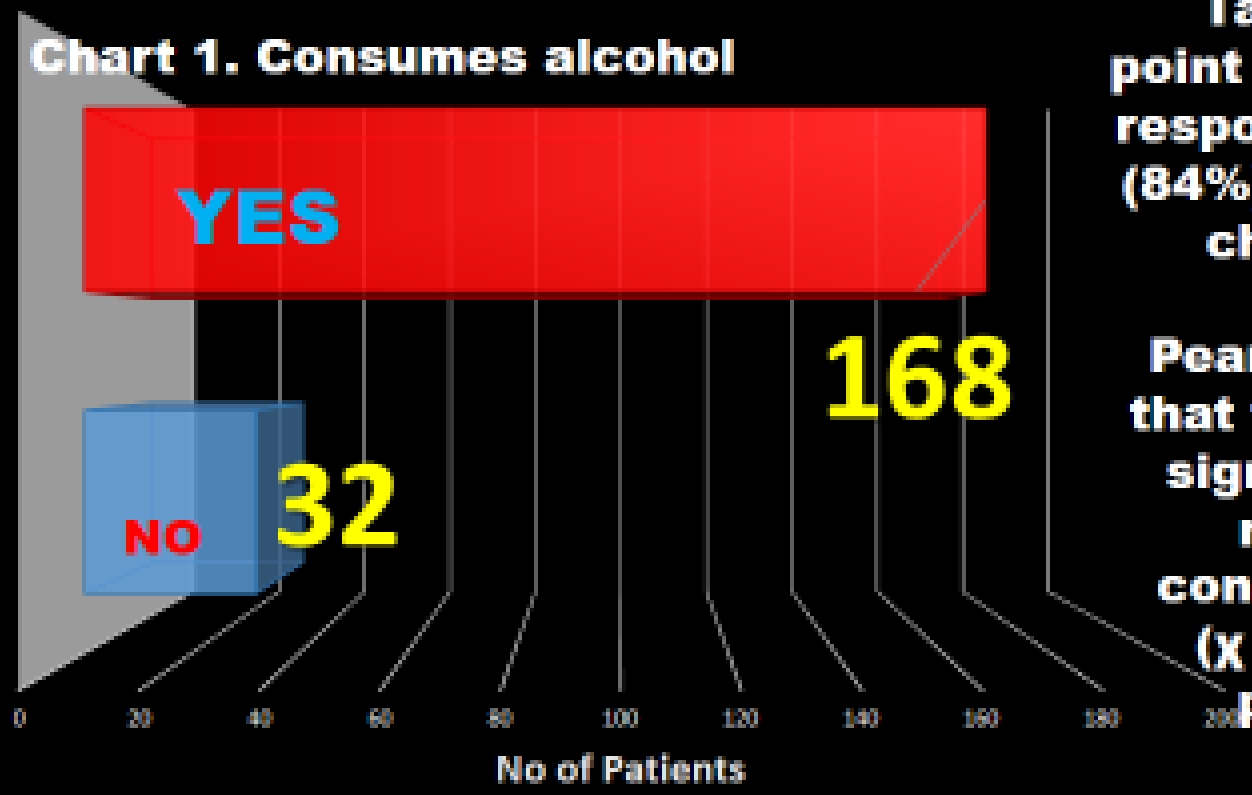
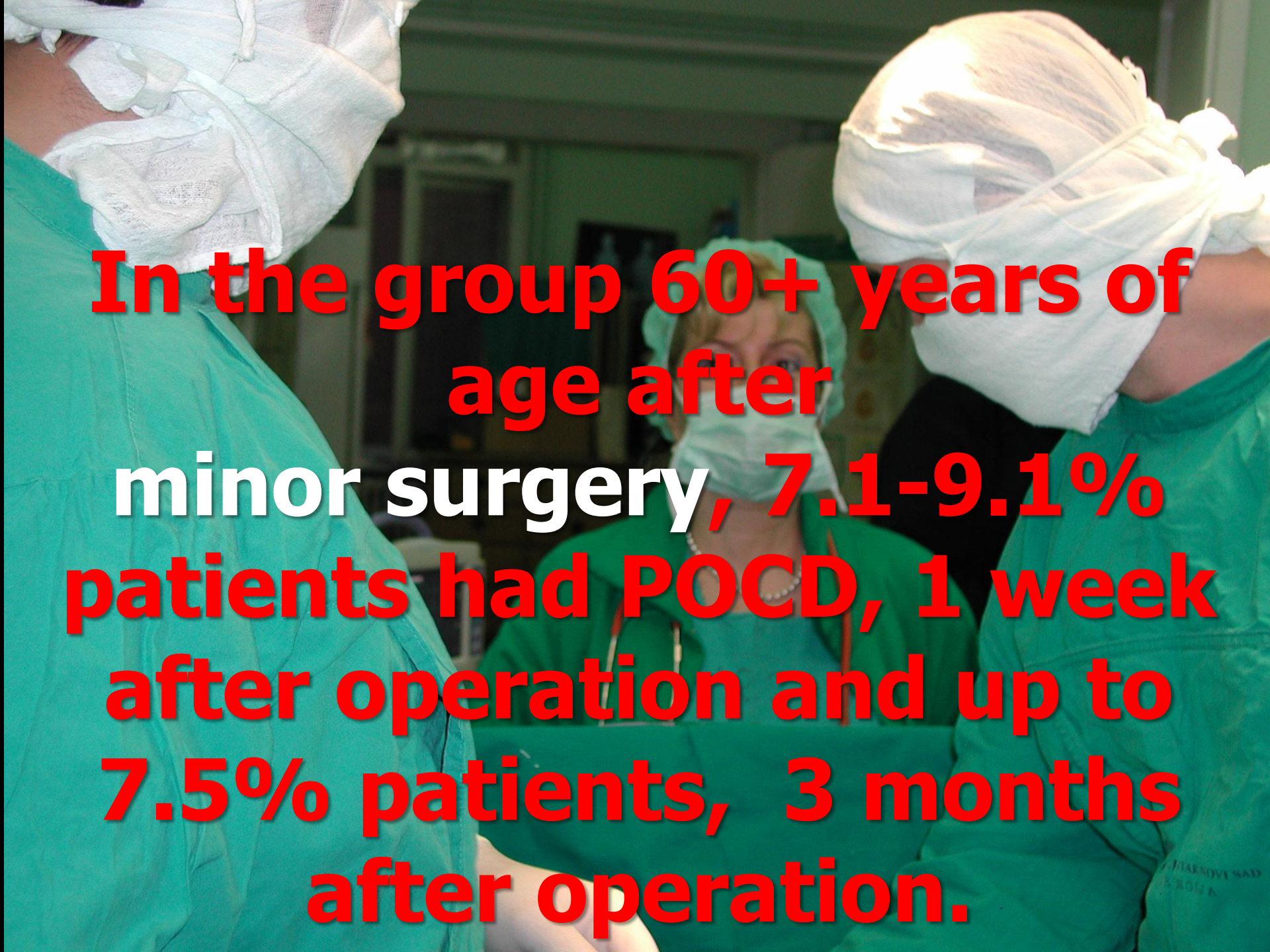


Table and Chart No1: point to the fact that among respondents registered 168 (84%) treated patients who chronically consume alcohol.

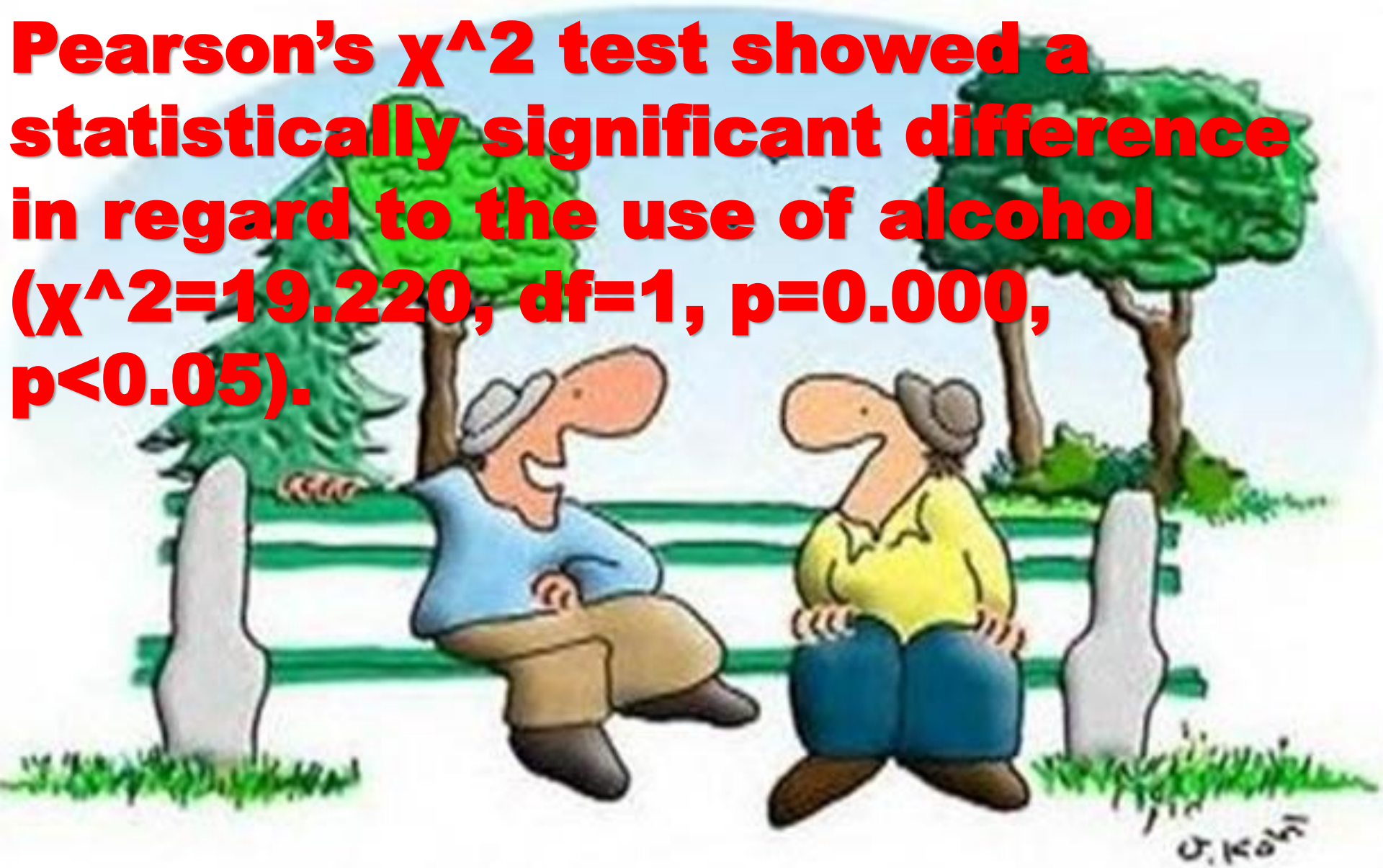
Pearson χ ^ 2 test shows that there is a statistically significant difference in relation to alcohol consumption in subjects (χ ^ 2 = 92.480, df = 1, p = 0.000, p <0.05).

In the group 60+ years after major surgery, there were symptoms in 5.4 - 52.4% patients, 1 week after operation and 6.1-8.7%, 3 months after operation.



In the group 60+ years of age after minor surgery, 7.1-9.1% patients had POCD, 1 week after operation and up to 7.5% patients, 3 months after operation.

Pearson's χ^2 test showed a statistically significant difference in regard to the use of alcohol (χ^2=19.220, df=1, p=0.000, p<0.05).



"My doctor told me to avoid any unnecessary stress, so I didn't open his bill."

Midle- age group patients (40-59 years) with major surgery had POCD in 5.6-34.8%, 1 week after operation and 6.1-8.7%, 3 months after operation.

Some biomarkers were common, such as elevation of TNF-α, interleukin-1β, interleukin-6, interleukin-8, interleukin-10, CRP, matrix metalloproteinase-9, copeptin and cortisol levels.


The results suggest that a history of
alcohol abuse presents a risk for
postoperative cognitive impairment in
the domains of visuospatial abilities
and executive functions that may have
important implications for quality of
life and health risks.

CONCLUSION

Our results complement the data given by the World Health Organization and results of similar studies.

Literature data (US) point to the fact, that in 2050, the world will have over 70 million people older than 85 years.

But, today we are talking about ***young and midle age*** postoperative cognitive decline and delirium, after chronic alcohol consumption.

Monalisa after one week in ***NOVI SAD***

Before

After

THANK YOU FOR YOUR ATTENTION !!!