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Diagnostic-analogous scale for critical care medicine clinics with limited resources

Abstract:

The article describes new diagnostic-analogous scale for critical care medicine clinics with limited resources. The characteristic features are simplicity and cheapness compared to APACHE II scale.

Keywords: Diagnostic-analogous scale, clinics with limited resources

Introduction:

Nowadays different pathological conditions frequency has been considerably increased in critical medicine clinics, herewith lethality and invalidity indicators are still high and expensiveness of conducted treatment is to be noted. Thus critical condition forecast indicators' development presents a problem that shall facilitate more optimal application of the resources. Various methods of patients' evaluation being in critical condition are provided enabling definition of lethality approximate number in accordance with different indicators of the patient. However these scales ration analysis shows that they are not quite reliable for forecast evaluation of patients being in critical condition, besides a lot of indicators of patients' data are necessary for their implementation requiring enormous time and costs in most cases; therefore comparatively simple forecast analogue scale has been elaborated in critical medicine care institute (Z. Kheladze, Zv. Kheladze, 2011) for condition evaluation and forecasting of the patients being in critical condition.

Material and Methods:

Forecast analogue scale has been developed and applied in practice in Critical Care Medicine Institute and in accordance with it evaluation and forecast is conducted for the patients being in critical condition. Here comparatively simple, low-priced and widely available parameters' application is emphasized (Table 1).

#	Sign	Stage III terminal condition	Stage II poly-organ failure	Stage I mono-organ failure	healthy
1.	Points	0 point	1 point	2 points	3 points
2.	Color	Like a ground	cianosis	Pale or reddish	natural
3.	position	Passive	forced lying	forced sitting	active
4.	movement	motionless	Involuntar	restricted	free
5.	Speech	There is not	Incomprehensible	Unclear	clear
6.	consciousness	unconscious	somnolence	Uninformed	clear
7.	Heart rate	0	40<>140	50<>100	60<>70
8.	Breath rate	0	1<>30	5<>20	10<>15
9.	systolic blood pressure	0	60<>300	100<>200	96<>100
10.	Oxygen sat.	0	80<>90	91<>95	96<>100
11.	t °C	30<>35	30<>35.5	35.5<>38	36<>39
12.	Total	0 point	10 points	20 points	30 points

Within this scale points are calculated with respect to 10 main vital indicators and points indicating age, accompanied disease and conducted operation are added thereto. In case of age over 60 years +1 point is added, in case of accompanied disease +1 point is added, post-operational period +1 point.

Data obtained through our scale has been compared with the results of APACHE II.

Results and Discussion:

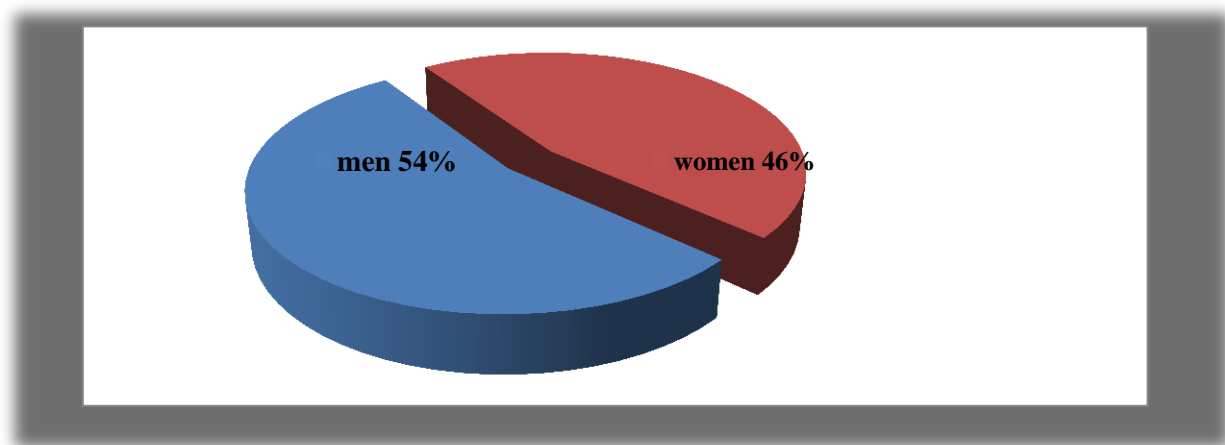
Evaluation of 100 patients being in critical condition has been calculated with forecast-analogue and APACHE II scales. Total lethality constituted 33% (33 patients).

Data of our clinic revealed that out of 100 studied patients I stage of critical condition has been noted for 46 (46%) patients, II stage for 24 (24%) patients and III stage for 30 (30%) patients. Out of patients entered in the first stage died 2 (0.5%) patients, in the second stage 6 (20%) patients, and in the third stage 25 (68%) patients. Lethality percentage is provided in the table (Table 2).

Table #2. Lethality indicators due to stages

Evaluation analogue scale for critical condition	Stage I mono-organ failure 20-30 points	Stage II poly-organ failure 10-00 points	Stage III terminal condition 0-10 points
Number of patients	46	24	30
MORS	2	6	25
Mortality according to the stages	0,5%	20%	68%
Total mortality	2%	6%	25%
			sum 33%

Evaluation of the same 100 patients being in critical condition has been conducted with APACHE II scale, wherein 20-25 points (corresponding I stage) had 45 (45%) patients, 26-30 (corresponding II stage) had 34 (34%) patients, and more than 30 points (corresponding III stage) had 21 (21% patient). Lethality has been distributed as follows: 3 (0.8%) patients died with 20-25 points, 12 (29%) died with 26-30 points and 19 died out of the patients evaluated with more than 30 points (Table 3).



Lethality between women and men was vice-versa, Women – 46%, men – 54%.

Treatment management of patients being in critical condition had been conducted in accordance with the current standards including lungs artificial ventilation implemented with average hyperventilation mode, considering air indicators in arterial and venous blood and its correction, if necessary vasopressor and cardio mimetic infusion, electrolyte balance correction, parental and enteral feeding 3500 kcal per diem, antibacterial treatment and other standard activities.

Results revealed that critical condition under critical condition evaluation forecast-analogue scale is being established in earlier stage and with more accuracy, lethality indicator is in correlation with critical condition stages as well; what concerns evaluation under APACHE II scale, it is more precise and is characterized with more lethality for revealing the patients being in III stage or terminal condition and its is not considerably helpful in forecast conduction in critical condition of I and II stages.

Conclusion:

Forecast-analogue scale developed by critical care medicine institute evidenced that it can be easily applied for forecast evaluation in patients being in critical condition, it is more precise in comparing with the other scales and correlates with critical condition and its stages, in addition it is simple, low-priced and available for doctors of critical medicine.

References:

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პროგნოზულ – ანალოგიური შკალა შეზღუდული რესურსების მქონე კრიტიკული მედიცინის კლინიკებისათვის

დღეისათვის კრიტიკული მედიცინის კლინიკებში გარკვეული პრობლემას წარმოადგენს კრიტიკული მდგომარეობის პროგნოზული მაჩვენებლების შემუშავება, ეს კი შესაძლებლობას მოგვცემდა უფრო ოპტიმალურად იქნეს გამოყენებული რესურსები. კრიტიკული მედიცინის ინსტიტუტში შემუშავებული და პრაქტიკაში გამოყენებული იქნა პროგნოზულ ანალოგიური შკალა, რომლის მიხედვით ხდება კრიტიკულ მდგომარეობაში მყოფ პაციენტთა შეფასება და პროგნოზირება. ამ შემთხვევაში აქცენტი გადატანილია შედარებით მარტივი, იაფი და ყველასათვის ხელმისაწვდომი პარამეტრების გამოყენებაზე. გამოთვლილი იქნა 100 კრიტიკულ მდგომარეობაში მყოფი პაციენტის შეფასება პროგნოზულ - ანალოგიური შკალით. (საერთო ლეტალობამ შეადგინა 33%).