ÖZEL PATERNLER

Prof. Dr. Sarenur Gökben

ÖZEL PATERNLER

A. İnteriktal epileptiform paternler

Hipsaritmi

Yavaş diken dalga paterni

B. Periyodik deşarjlar

Lateralize Periyodik epileptiform deşarj (LPD) *(PLEDs)*

Jeneralize Periyodik epileptiform deşarj (JPD)

Bilateral /unilateral bağımsız

Supresyon-burst paterni

Trifazik dalgalar***

C. Supresyon paterni (izoelektrik)

ACNS GUIDELINE

American Clinical Neurophysiology Society's Standardized Critical Care EEG Terminology: 2021 Version

Lawrence J. Hirsch,* Michael W.K. Fong,† Markus Leitinger,‡ Suzette M. LaRoche,§ Sandor Beniczky,‖ Nicholas S. Abend,¶ Jong Woo Lee,# Courtney J. Wusthoff,** Cecil D. Hahn,†† M. Brandon Westover,‡‡ Elizabeth E. Gerard,§§ Susan T. Herman,‖‖ Hiba Arif Haider,§ Gamaleldin Osman,¶¶ Andres Rodriguez-Ruiz,§ Carolina B. Maciel,## Emily J. Gilmore,* Andres Fernandez,*** Eric S. Rosenthal,††† Jan Claassen,‡‡‡ Aatif M. Husain,§§§ Ji Yeoun Yoo,‖‖‖ Elson L. So,¶¶¶ Peter W. Kaplan,### Marc R. Nuwer,**** Michel van Putten,†††† Raoul Sutter,‡‡‡‡ Frank W. Drislane,§§§§ Eugen Trinka,‡ and Nicolas Gaspard‖‖‖‖

*Comprehensive Epilepsy Center, Department of Neurology, Yale University School of Medicine, New Haven, Connecticut, U.S.A.; †Westmead Comprehensive Epilepsy Salzburg, Epilepsy and the Massach[illegible] University, y, Danish iladelphia , Boston, dren and

Education

"ACNS Standardized Critical Care EEG Terminology - 2021 Version" Training Module

- Full Version
- Part 1: EEG background and sporadic epileptiform discharges;
- Part 2: Rhythmic and Periodic Patterns; and
- Part 3: Seizures, Status Epilepticus, BIRDs and the Ictal-Interictal Continuum

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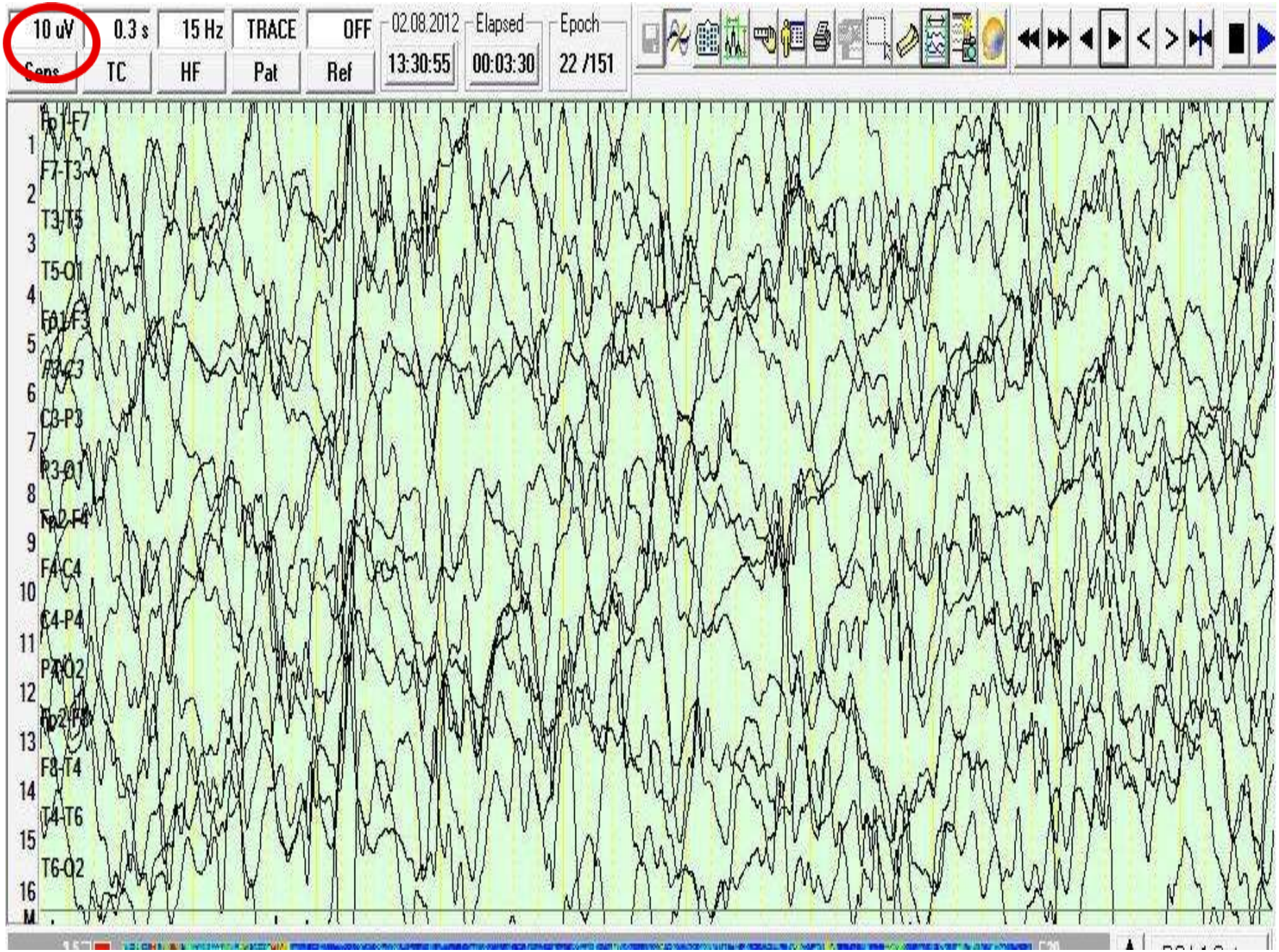
Critical Care EEG Monitoring Research Consortium (CCEMRC)
Self-Assessment Examination
on the
American Clinical Neurophysiology Society's 2021 Critical Care EEG Terminology

HİPSARİTMİ

- **HYPSELOS** (Yüksek)
- **ARRHYTMİA** (Düzensizlik)
- İnfant döneme özgü (PMA> 44 hafta)
- Yüksek voltaj (rutin sensitivite dışı)
- **ASENKRON** yüksek amplü
- yavaş d/ /keskin/ dikenler
- **KAOTİK AKTİVİTE*****
- Fokal dikenlerin süresi ve lokalizasyonu değişir
- Mak amp: Posterior bölgeler

HİPSARİTMİ

- Sürekli bir aktivite (uyanıklık,uyku)
- NREM: belirgin*** NREM>>uyanıklık
- NREM: amp. artar
- multifokal keskin/diken aktivite gruplaşma (psödoperyodik patern)
- REM uyku:hipsaritmi azalır/kaybolur
- Klinik nöbet: İnfantil spazm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T5-O1
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C3-P3
P3-O1
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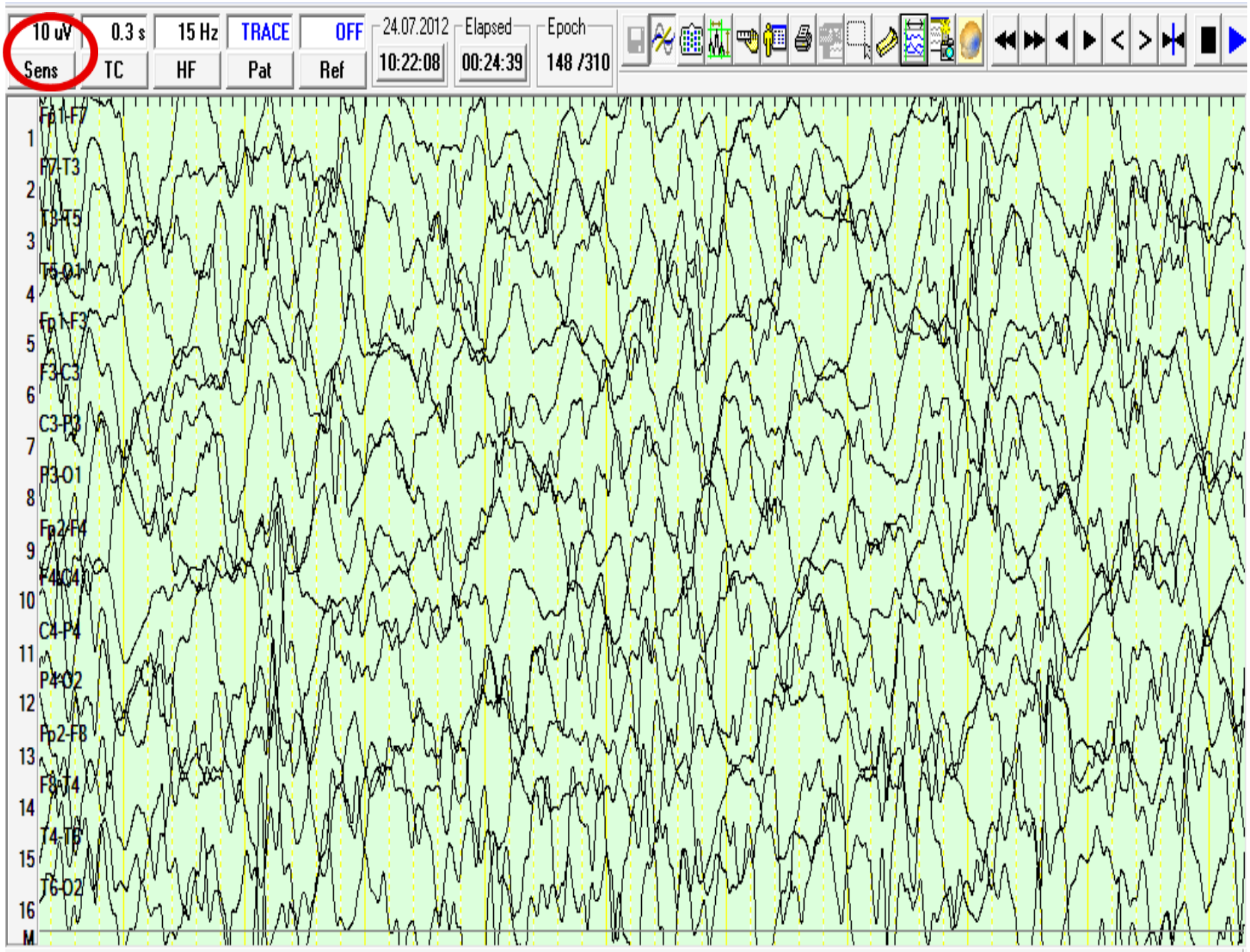
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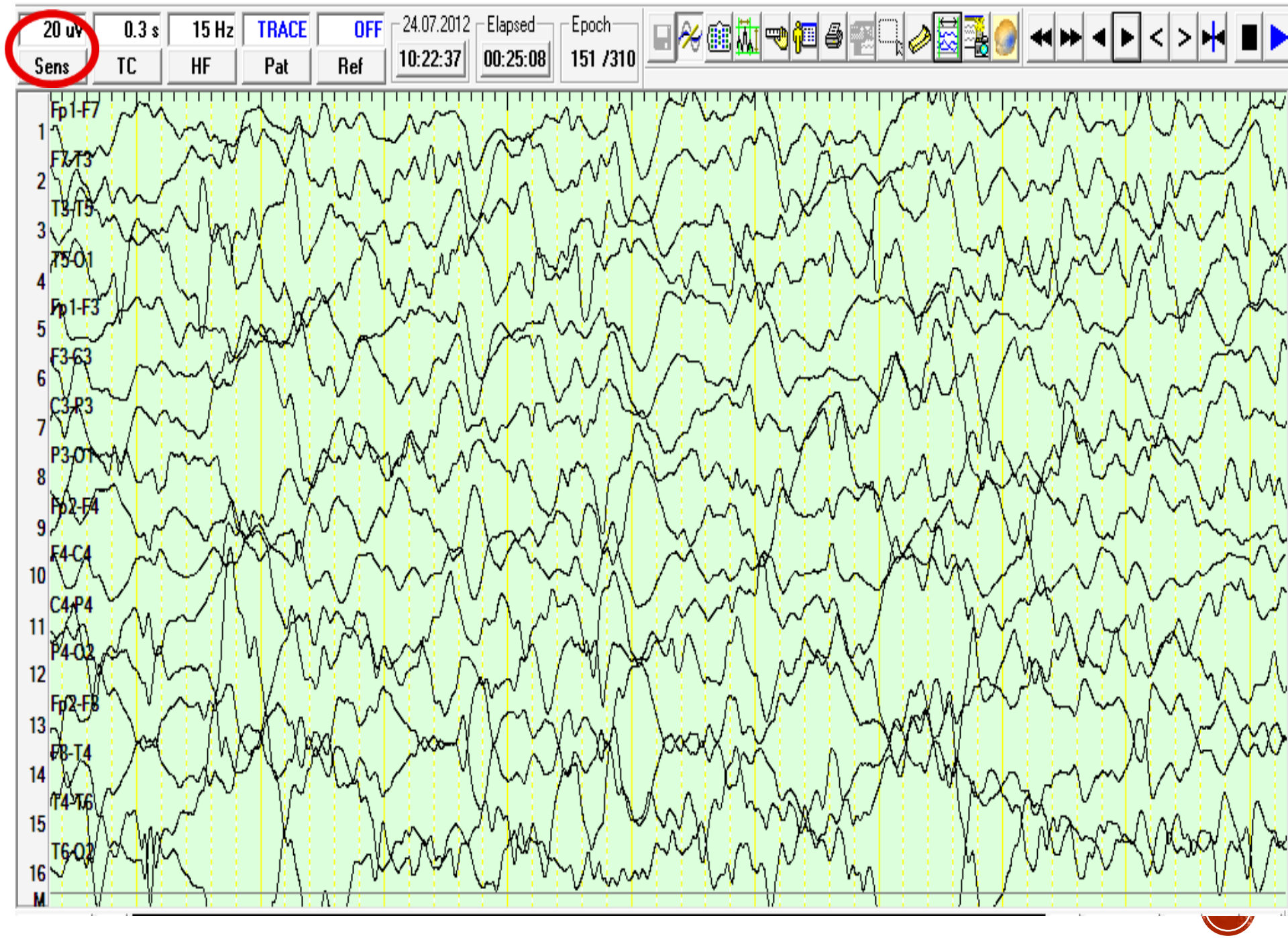
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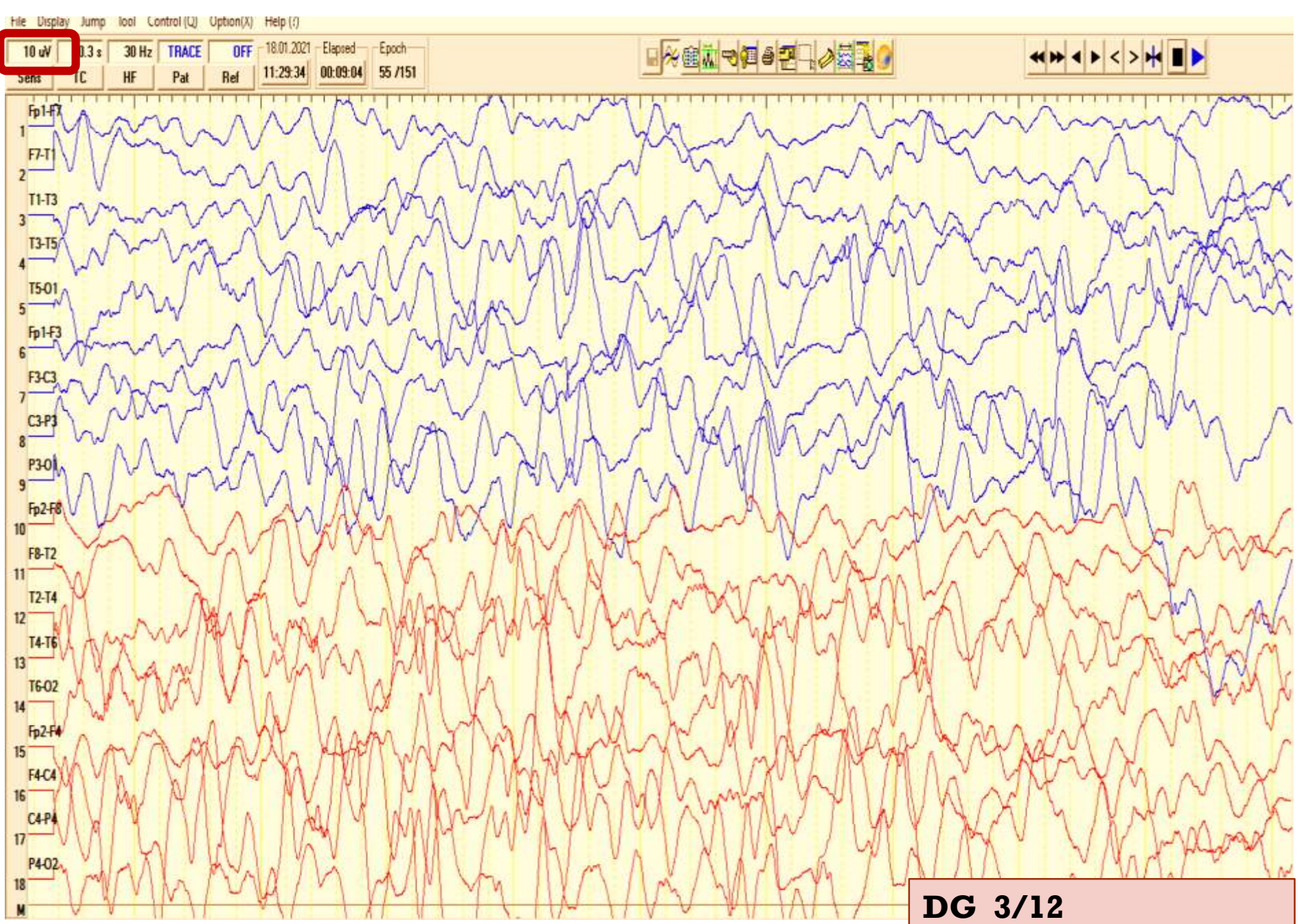
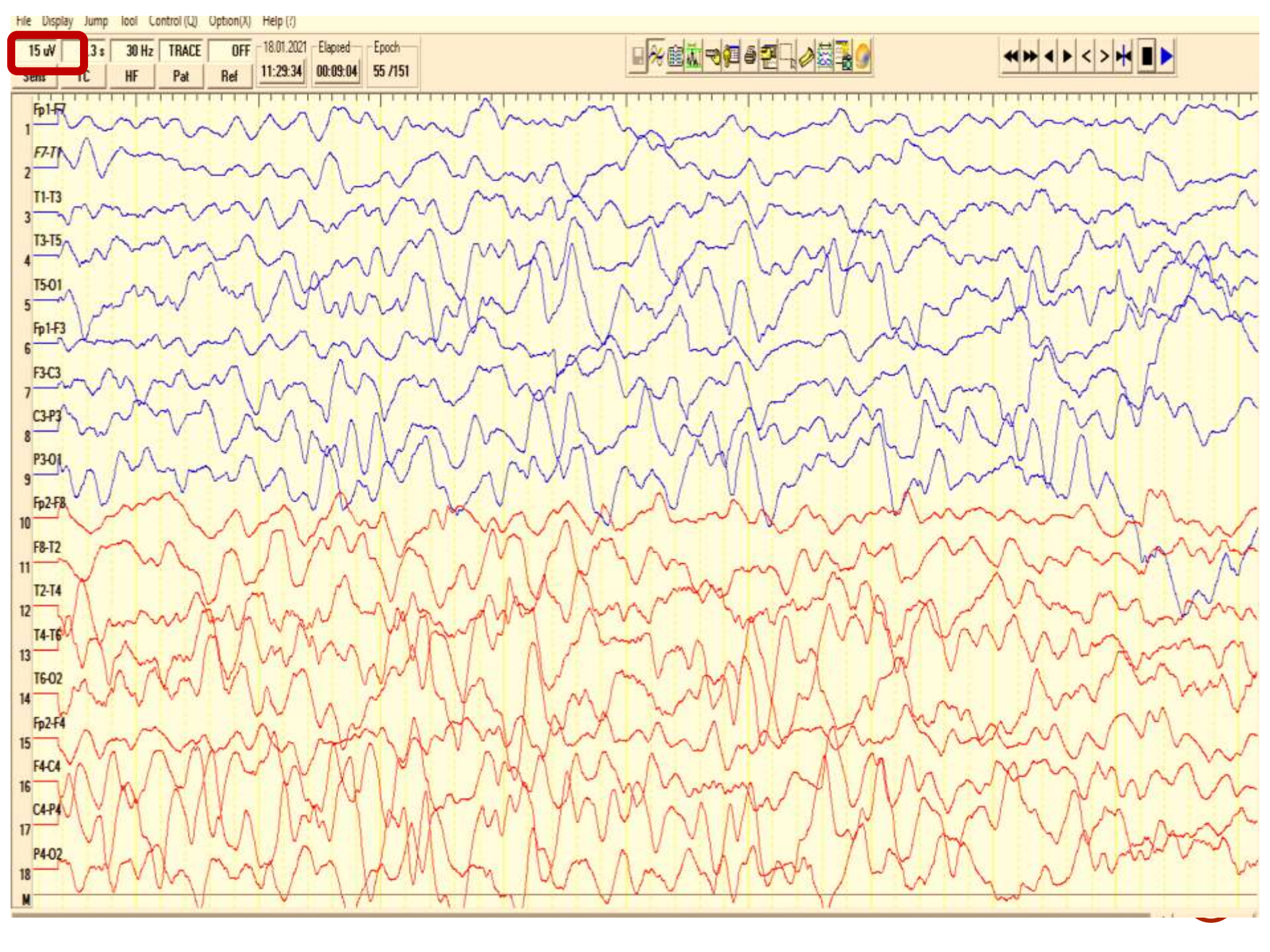


DG 3/12
***SCN2A* ilişkili EE**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T1-T3
T3-T5
T5-O1
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F3-C3
C3-P3
P3-O1
Fp2-F8
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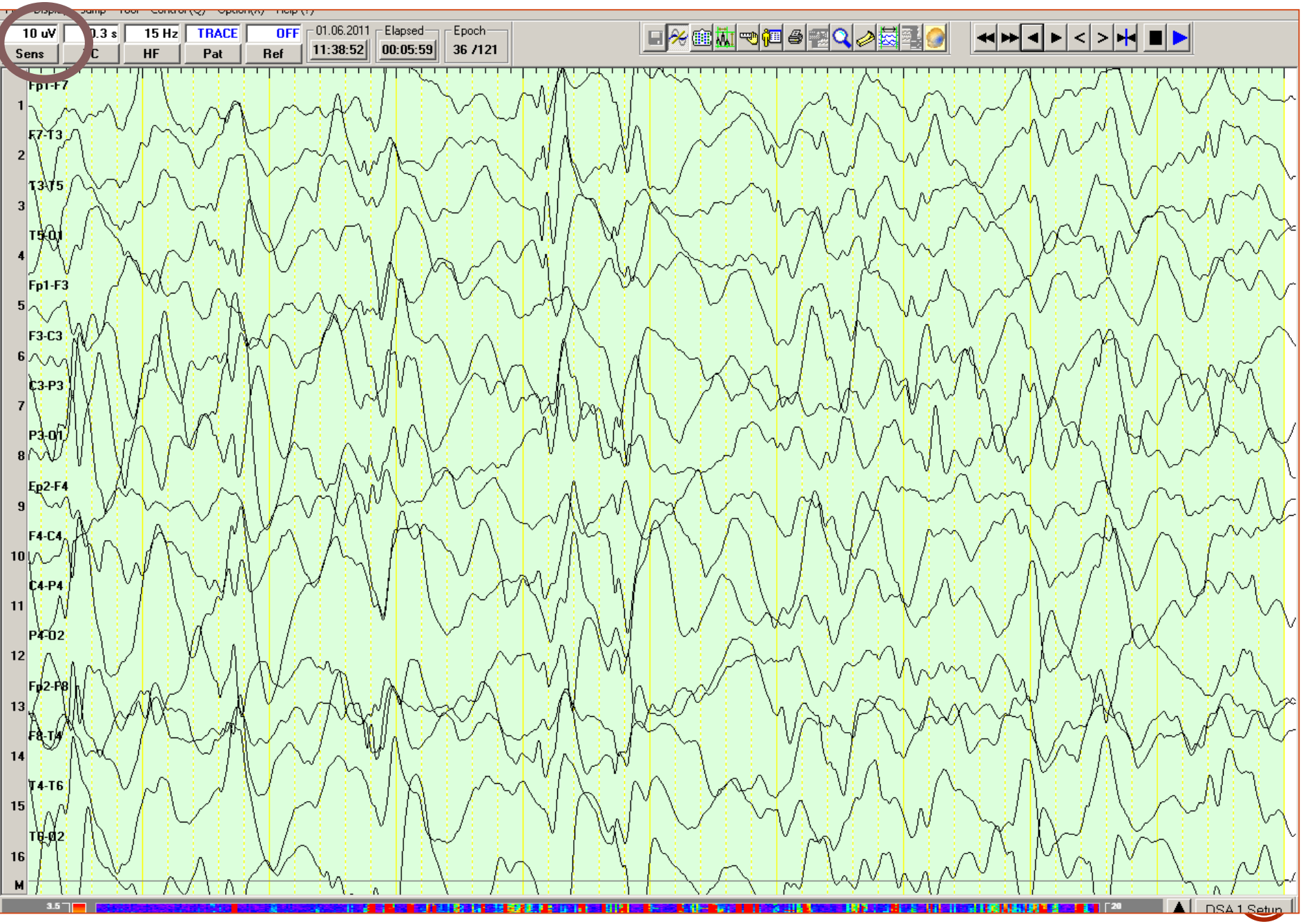
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Epoch
36 /121
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Ep2-F4
F4-C4
C4-P4
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T6-O2
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DSA 1 Setup

MODİFİYE HİPSARİTMİ (ATİPİK HİPSARİTMİ)

- İS %30 (10-69)
- Hemisferik senkroni ve simetri daha belirgin
- EEG çekim süresi
- EEG nin çekildiği dönem (erken /geç)
- Epilepsinin süresi (geç dönem sık)
- Yaşı büyük hasta
- Serebral gelişim anomali & Asimetrik H
- Etiyoloji X patern ilişki yok

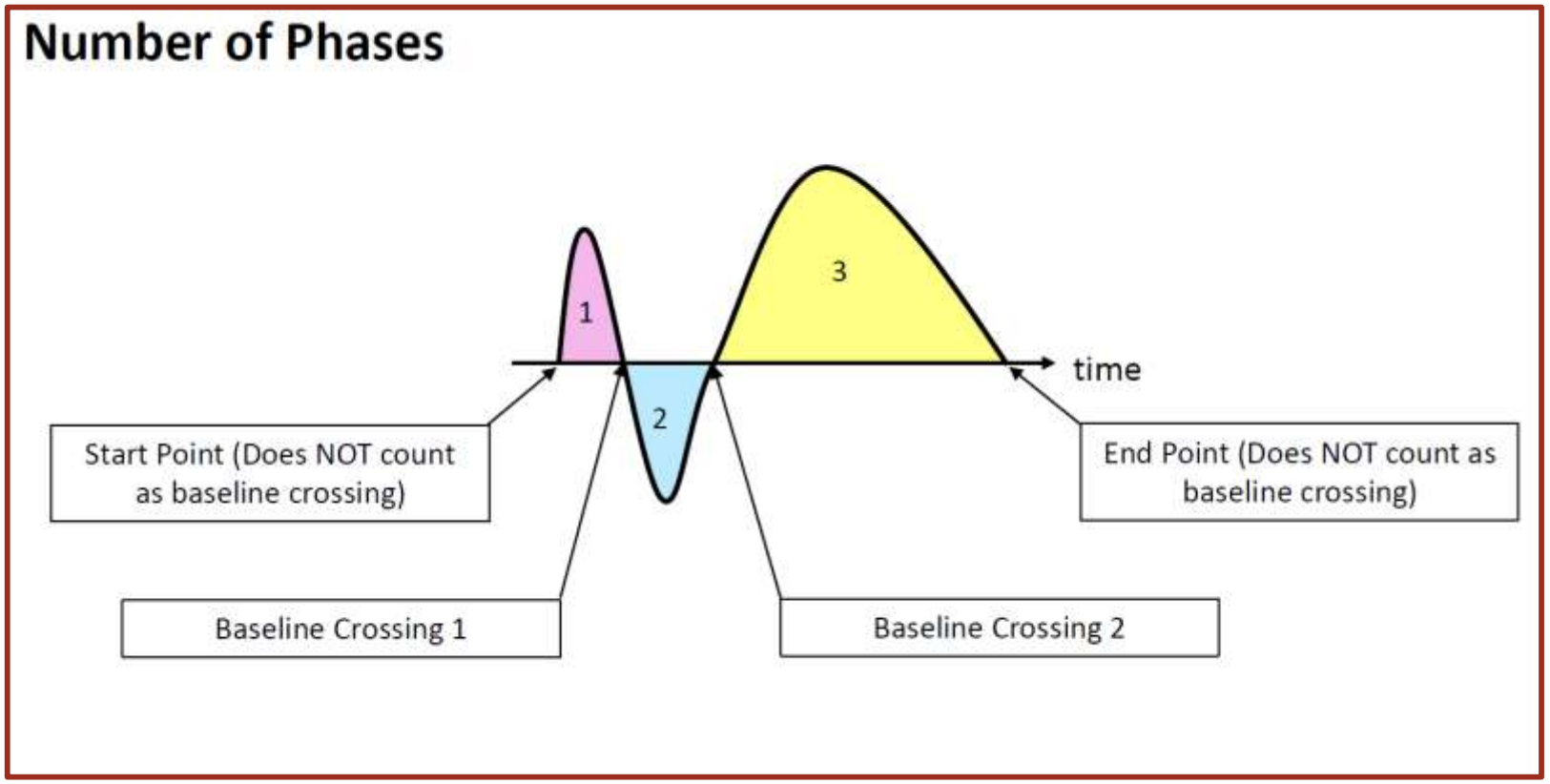
MODİFİYE HİPSARİTMİ (ATİPİK HİPSARİTMİ)

- 1.Artmış interhemisferik senkroni ile H
- 2.Asimetrik (unilateral/ hemisferik) H
- 3.Sabit foküslü H
- 4. Düşük voltajlı episodlar ile olan H (BSP, BAP)
- 5.Çok az diken/keskin aktiviteyle olan H

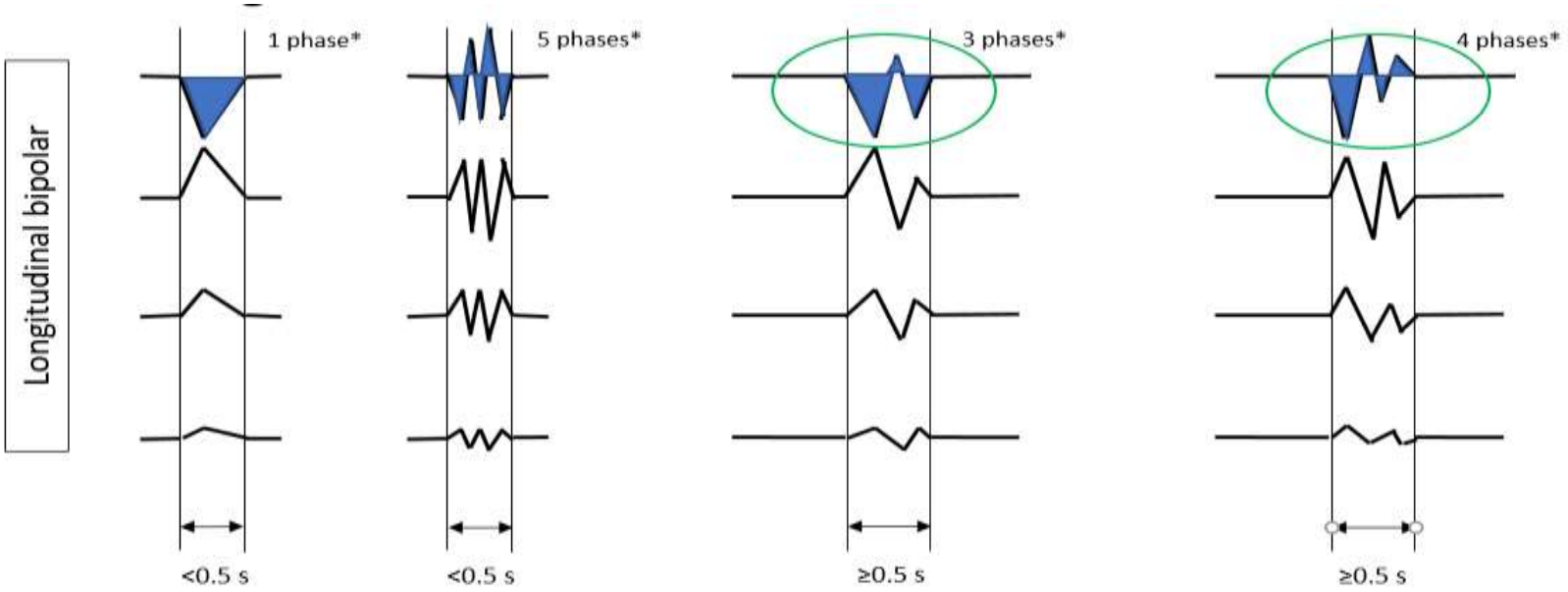
  (başlıca yavaş d oluşan H)

Hrachovy RA et al Epilepsia 1984
Watanebe K et al Epilepsia 1993
Kramer U et al Neurology 1997

DEŞARJ


Number of Phases
1
2
3
time
Start Point (Does NOT count as baseline crossing)
End Point (Does NOT count as baseline crossing)
Baseline Crossing 1
Baseline Crossing 2

DEŞARJ & BURST



< 0.5 s **<0.5 s** **DEŞARJ** **>0.5 s**

BURST **> 0.5 s**

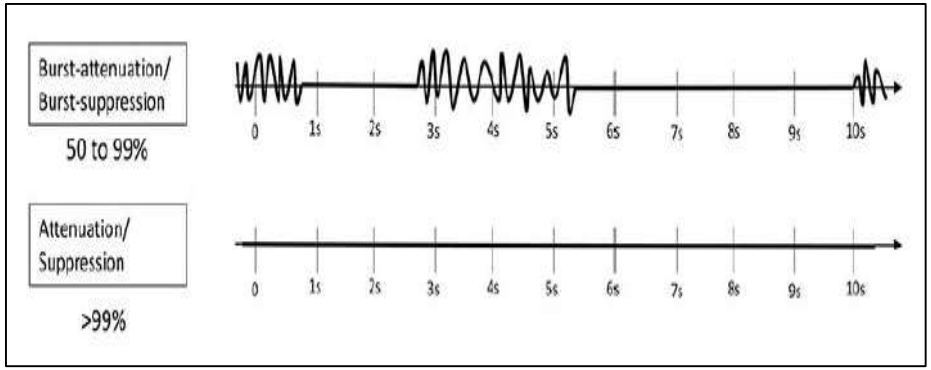
SÜRE <O.5 s
(Faz sayısı dikkate alınmaz) **VEYA**

SÜRE ≥O.5 s
(Faz sayısı ≤ 3

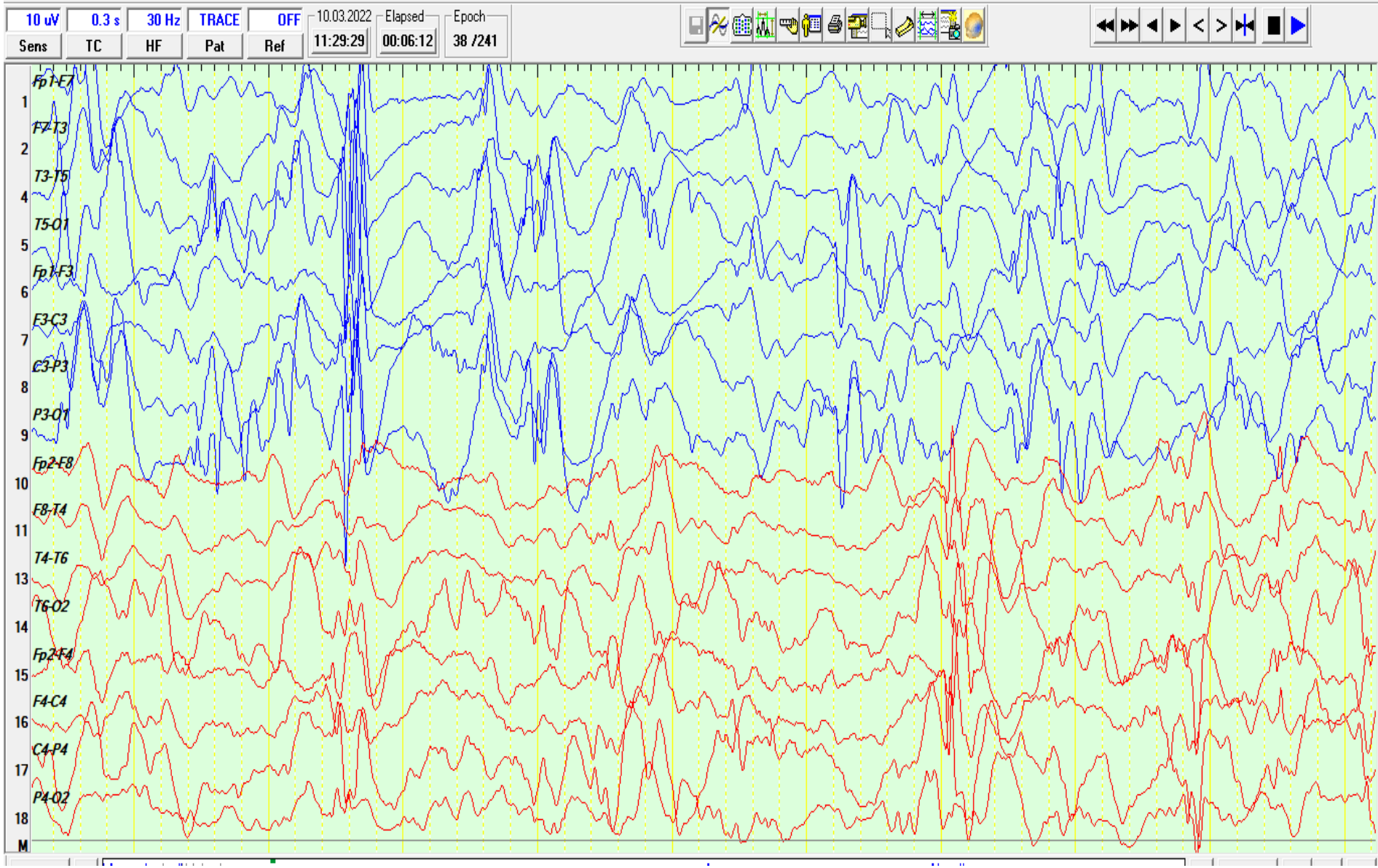
SÜRE ≥O.5 s VE
(Faz sayısı ≥ 4

BA/BS PATERNİ

- **Atenüasyon:** voltaj > 10 µv
- burstteki yüksek voltajın < %50
- **Supresyon:** voltaj < 10 µv



- Atenüasyon/supresyon periyodu
- total kaydın %50-99 olmalı


10 uV
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Epoch
38 /241
Fp1-F7
F7-T3
T3-T5
T5-O1
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Fp2-F8
F8-T4
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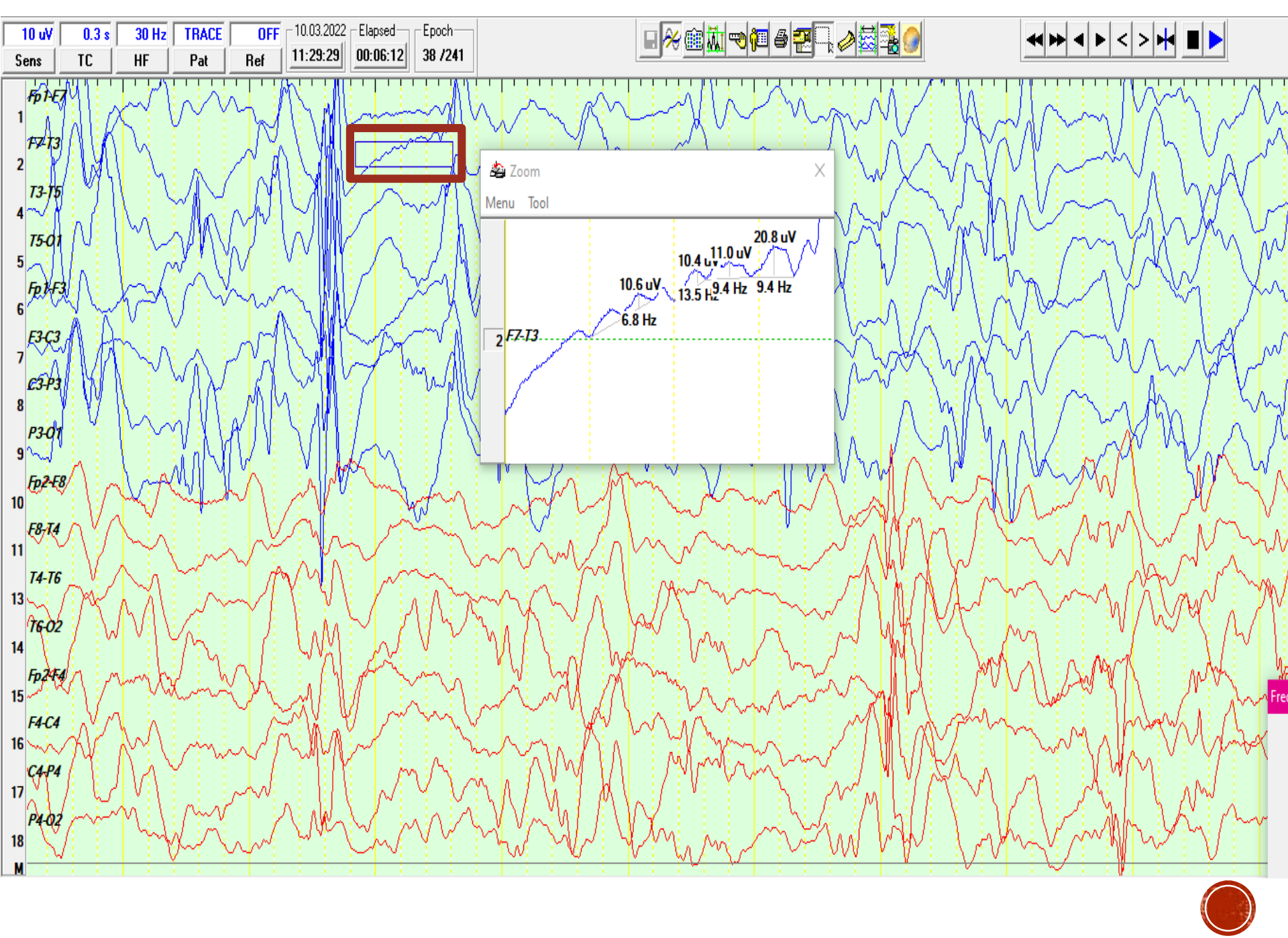
NT, HİE 16/12


10 uV
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Epoch
38 /241
Fp1-F7
FZ-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2
M
Zoom
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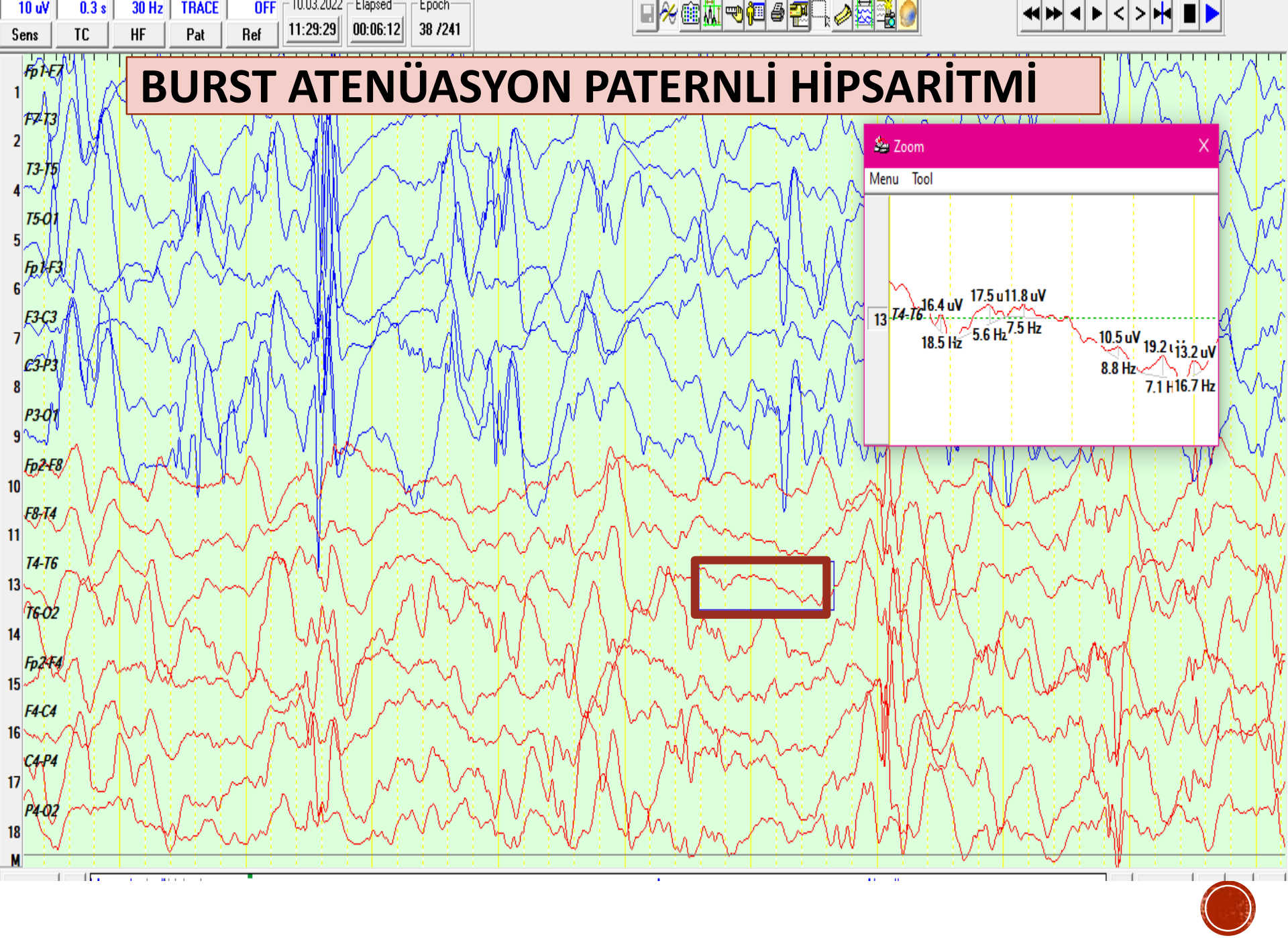
6.8 Hz
10.6 uV
13.5 Hz
10.4 uV
9.4 Hz
11.0 uV
9.4 Hz
20.8 uV


10 uV
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BURST ATENÜASYON PATERNLİ HİPSARİTMİ
Fp1-F7
F7-T3
T3-T5
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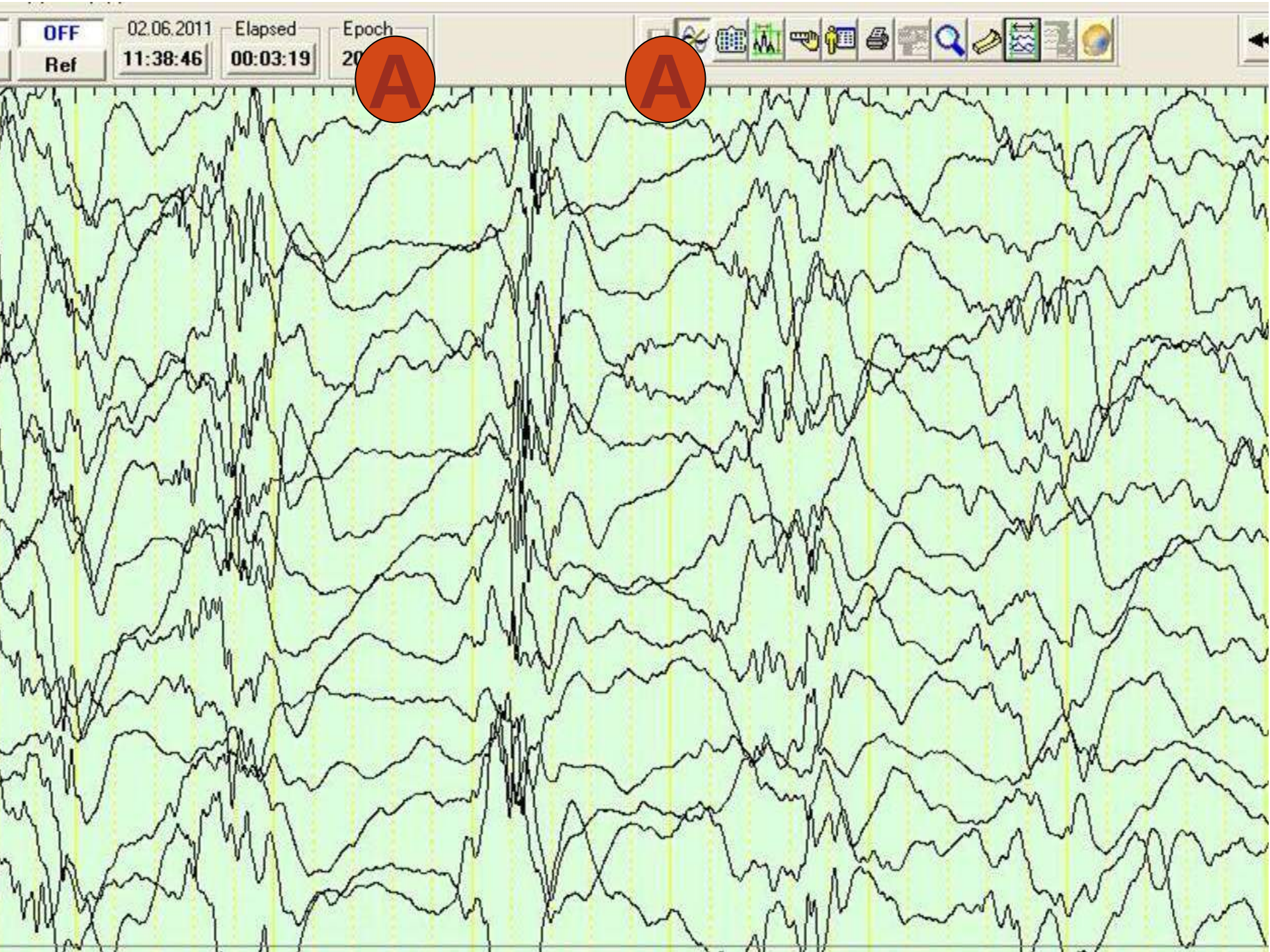
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2
Zoom
Menu
Tool
T4-T6
16.4 uV
17.5 u11.8 uV
18.5 Hz
5.6 Hz
7.5 Hz
10.5 uV
19.2 u13.2 uV
8.8 Hz
7.1 H16.7 Hz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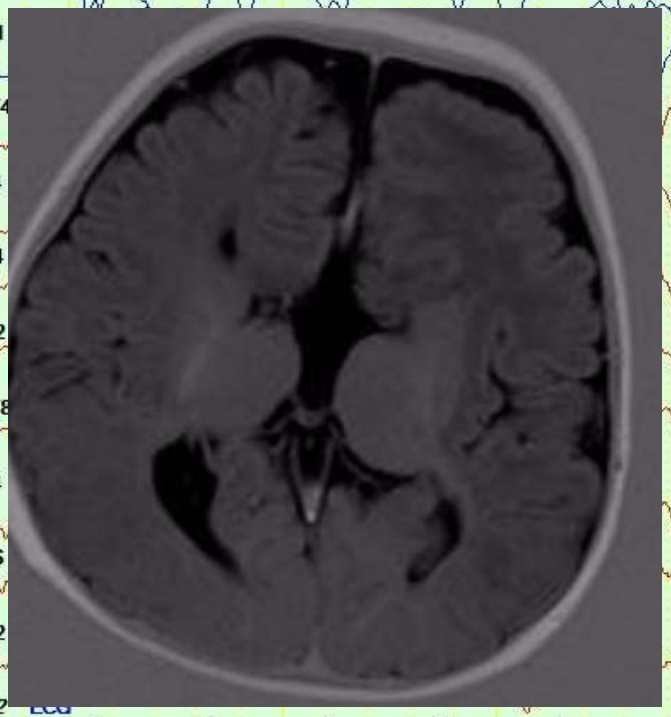
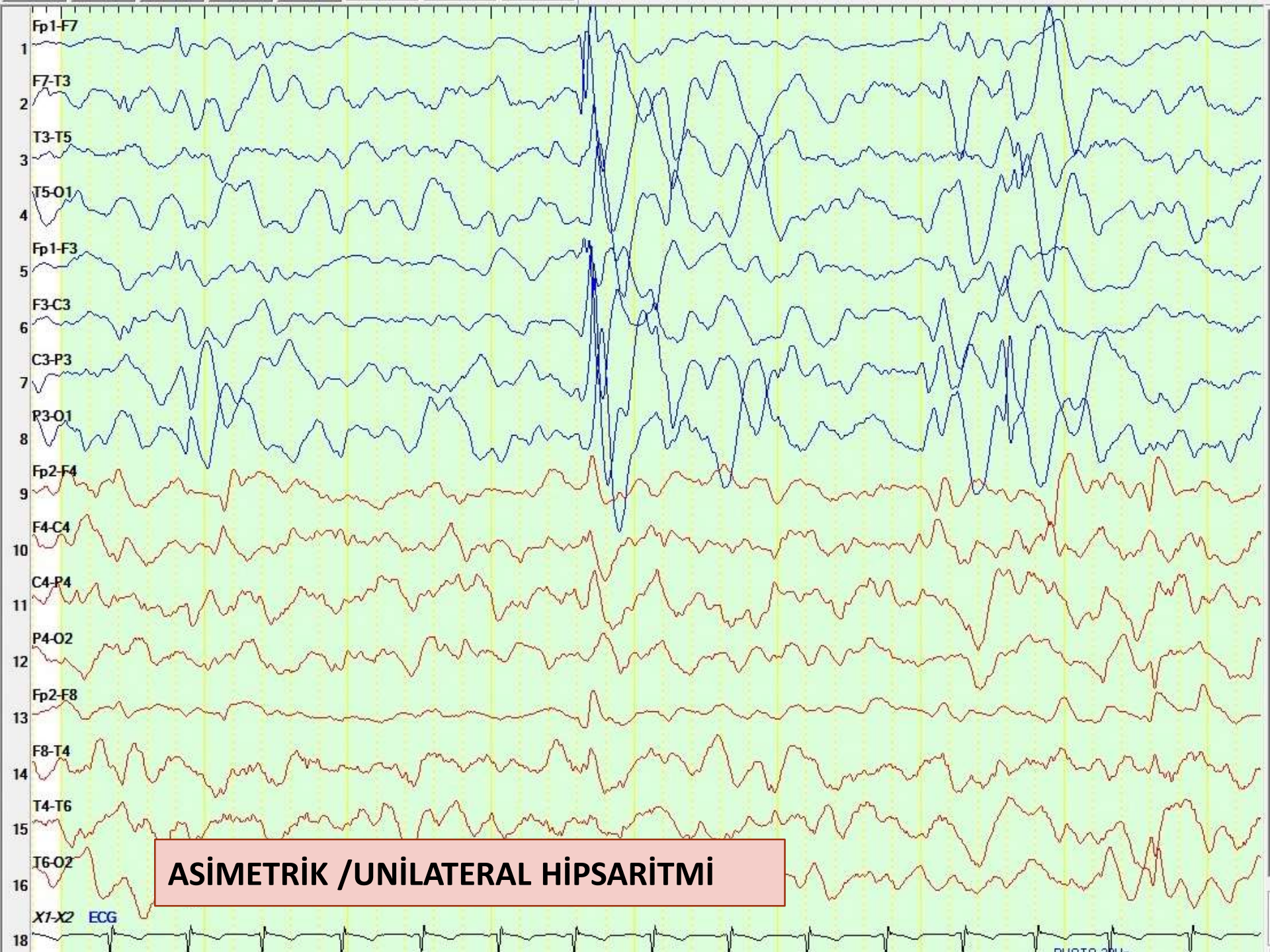
4 T5-O1
5 Fp1-F3
6 F3-C3
7 C3-P3
8 P3-O1
9 Fp2-F4
10 F4-C4
11 C4-P4
12 P4-O2
13 Fp2-F8
14 F8-T4
15 T4-T6
16 T6-O2
18 X1-X2



İK, 5/12
Sol frontal polimikrogiri
Sağda asimetrik spazm


Fp1-F7
F7-T3
T3-T5
T5-O1
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F3-C3
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Fp2-F4
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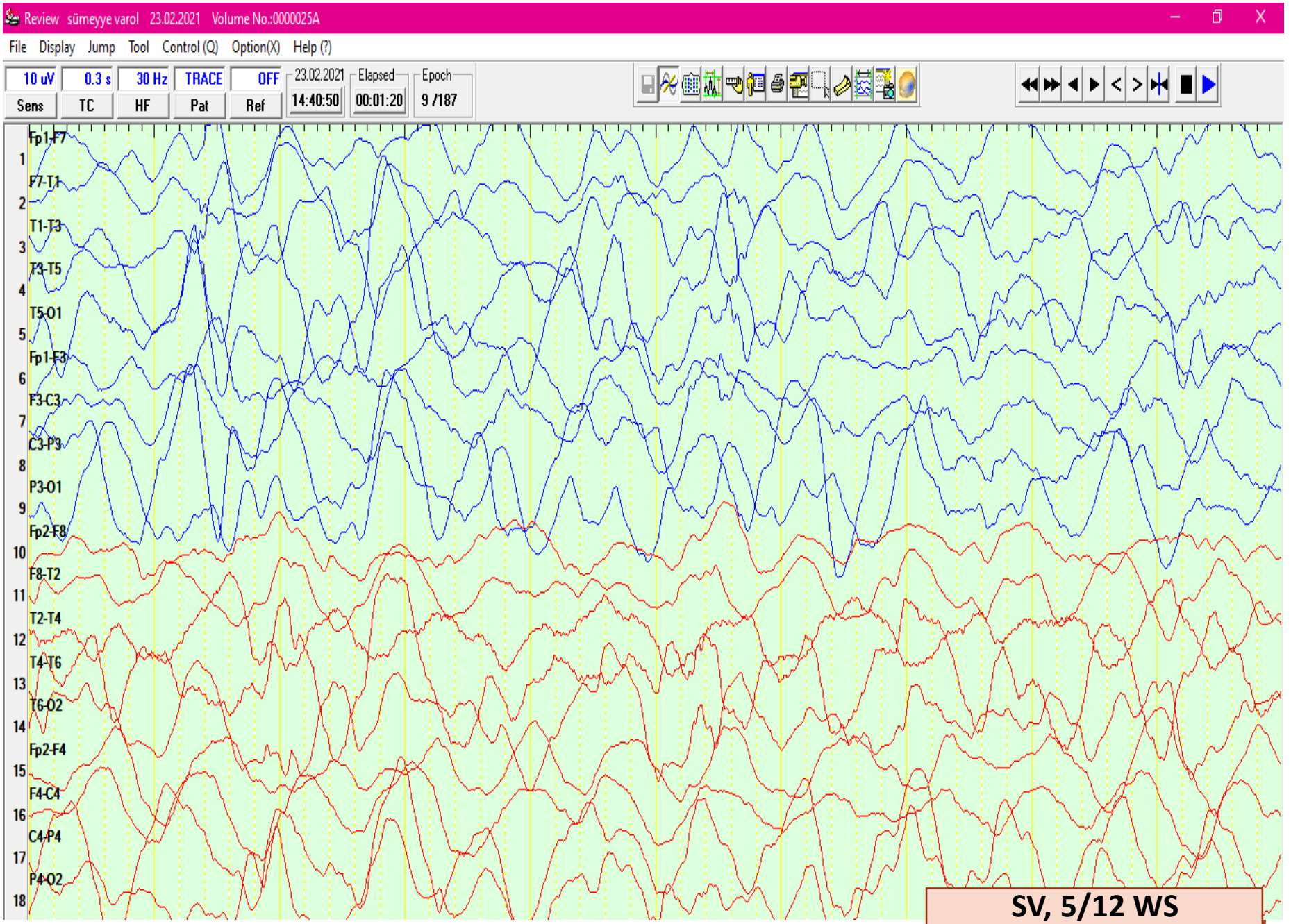
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
X1-X2 ECG
ASİMETRİK /UNİLATERAL HİPSARİTMİ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T5-O1
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C3-P3
P3-O1
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F8-T2
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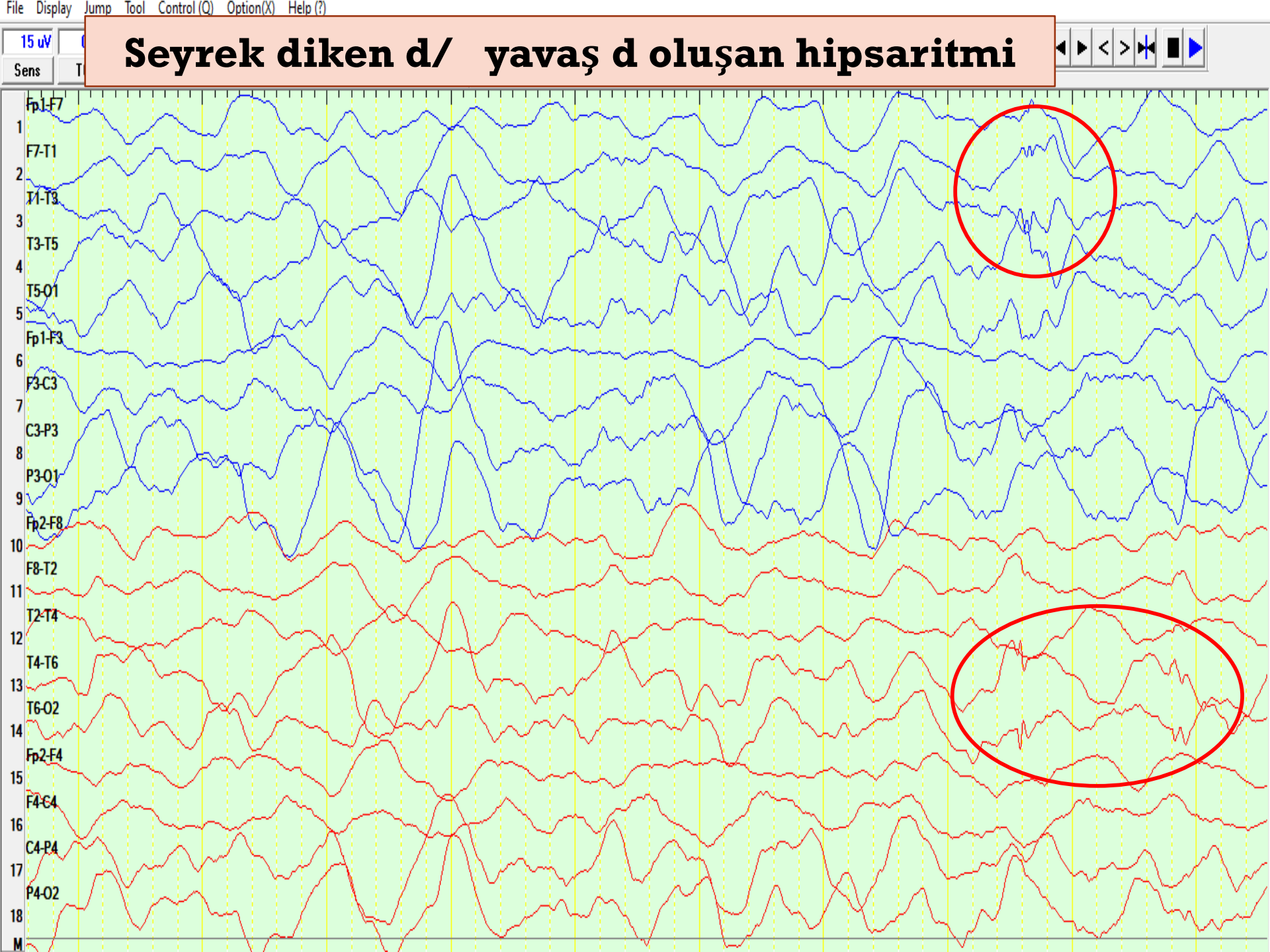
SV, 5/12 WS
ETİYOLOJİ ?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Fp2-F8
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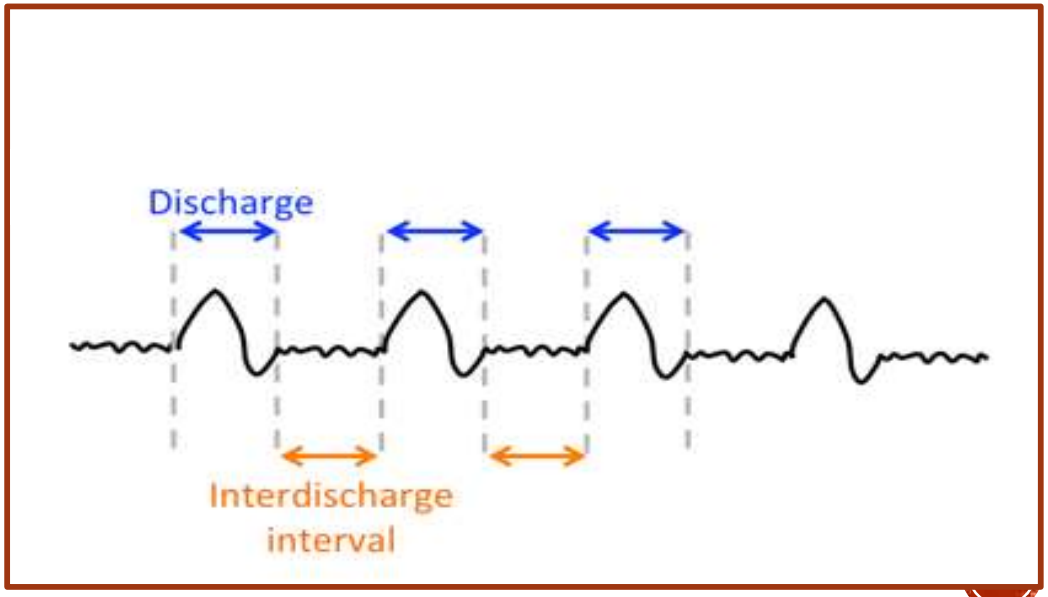
PERİYODİK DEŞARJLAR

- **Aralarında ölçülebilir bir aralığın olduğu düzenli aralıkla tekrarlayan deşarjlar**
- **Deşarjlar morfoloji ve süre açısından UNİFORM**
- **Diken/keskin/yavaş d oluşan kompleksler**
- **En az altı döngü olmalı (f: 1 Hz ise, 6 s sürmeli) ******
- **Temel aktivite**
- **yavaş ve düşük amp.lü**

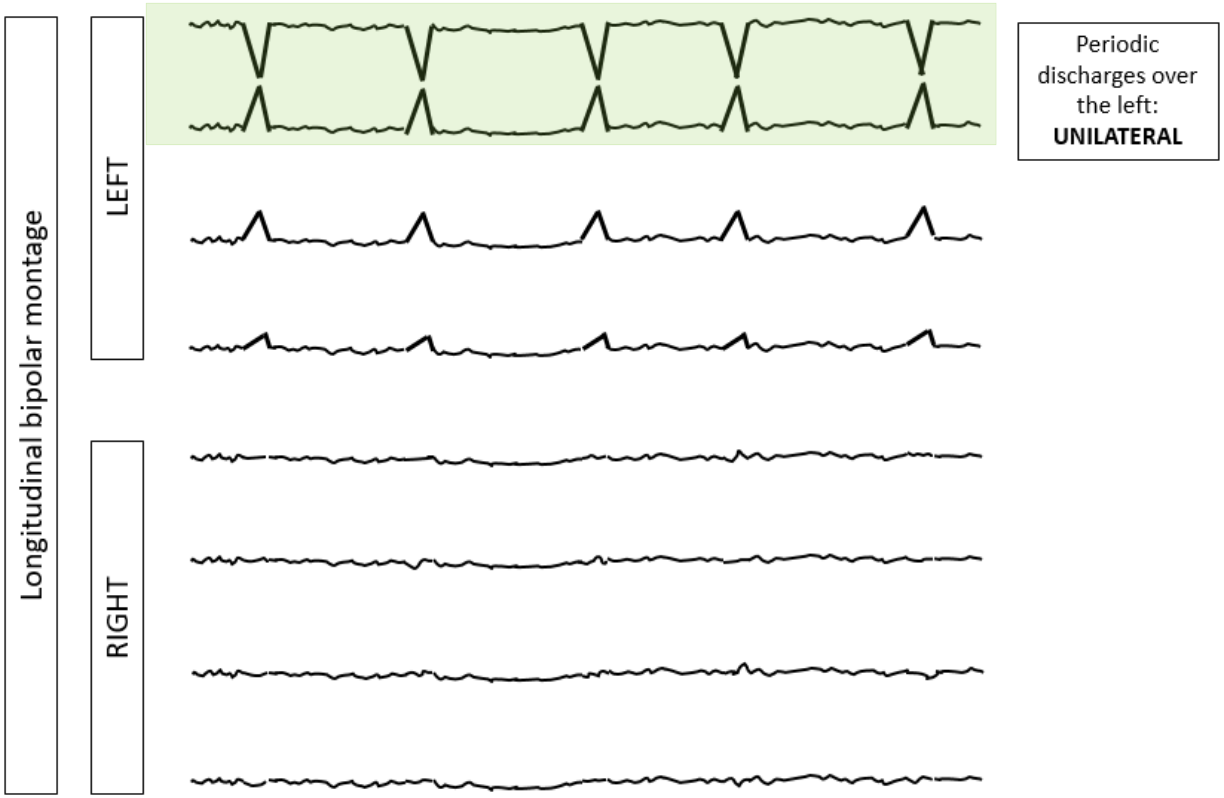


PERİYODİK DEŞARJLAR

- **Lateralize Periyodik deşarj (LPD)**
- **Jeneralize Periyodik deşarj (JPD)**
- **Bilateral Bağımsız Periyodik Deşarj (BIPD)**
- **Unilateral Bağımsız Periyodik Deşarj (UID)**
- **Multifokal Periyodik Deşarj**
- ***PD epileptojenitesi yüksek aktivite *****
- ***Trifazik dalgalar ?? %58 gözlemciler arası uyum***

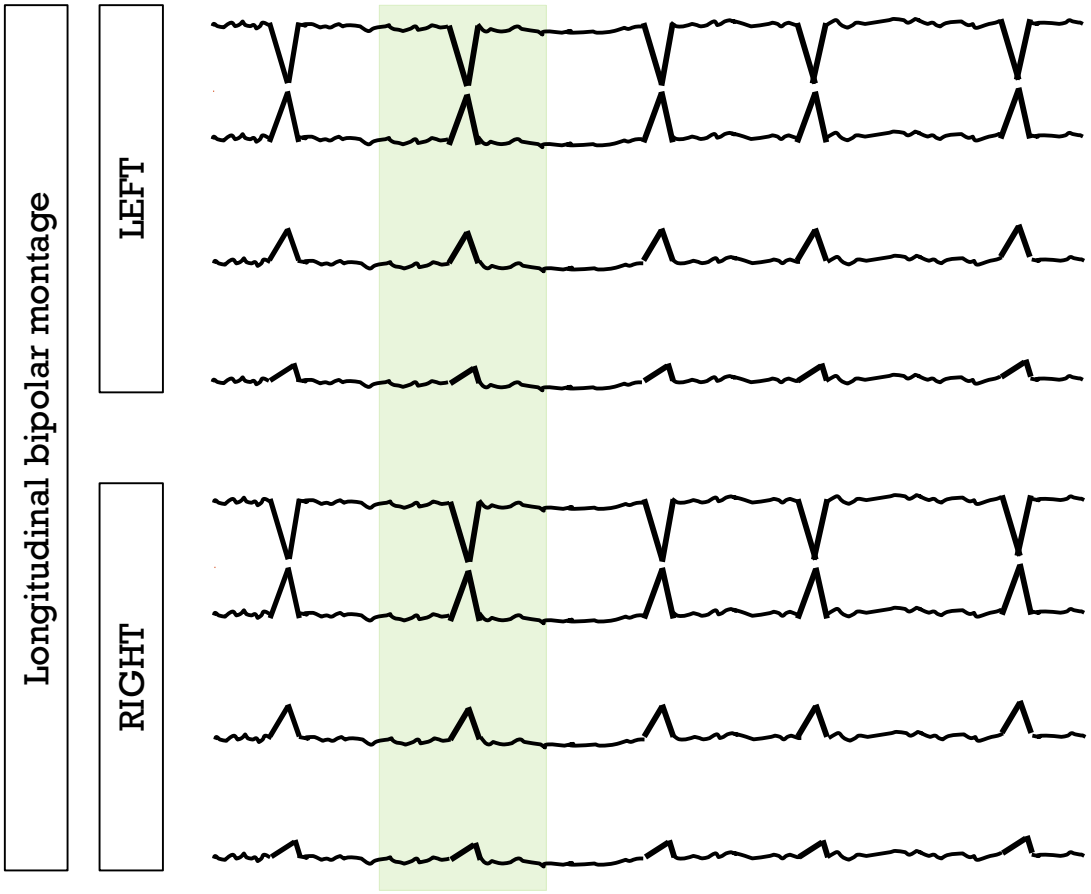
ACNS Critical care
EEG terminology 2021

LATERALİZE PERİYODİK DEŞARJ (LPD)



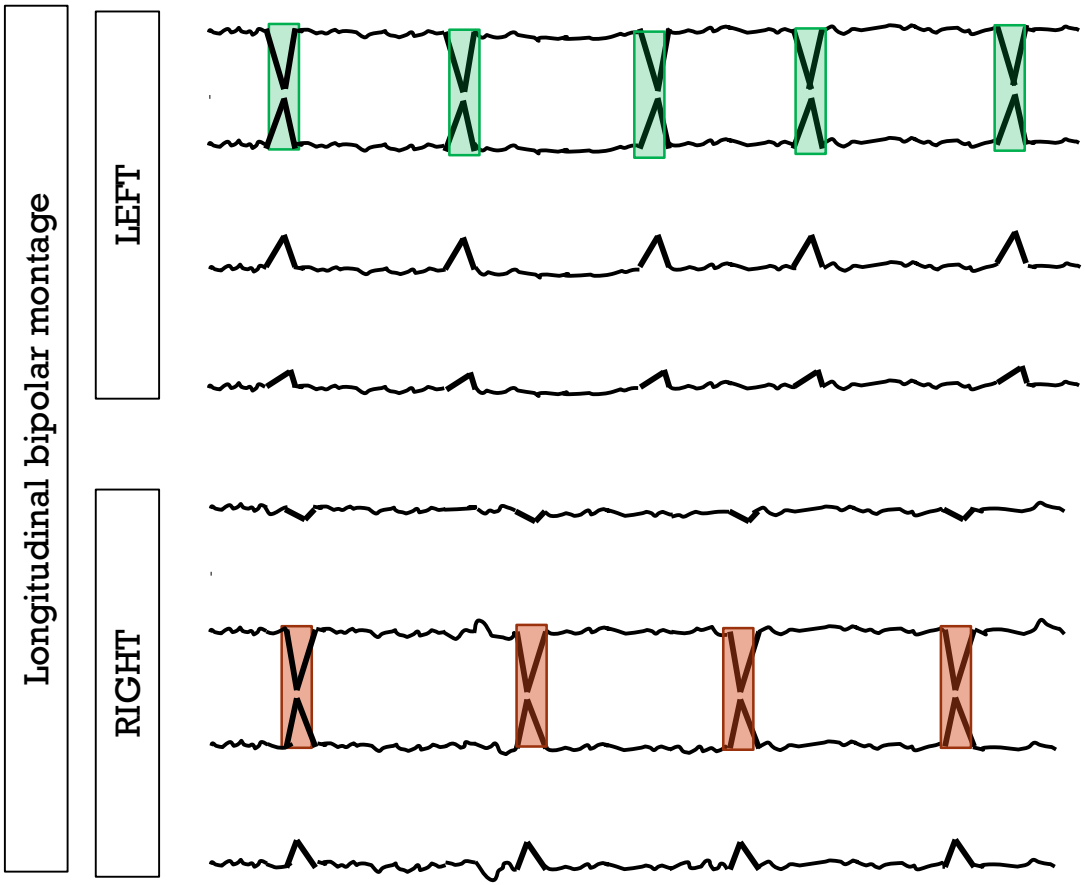
ACNS Critical care EEG terminology 2021

JENERALİZE PERİYODİK DEŞARJ (JPD)



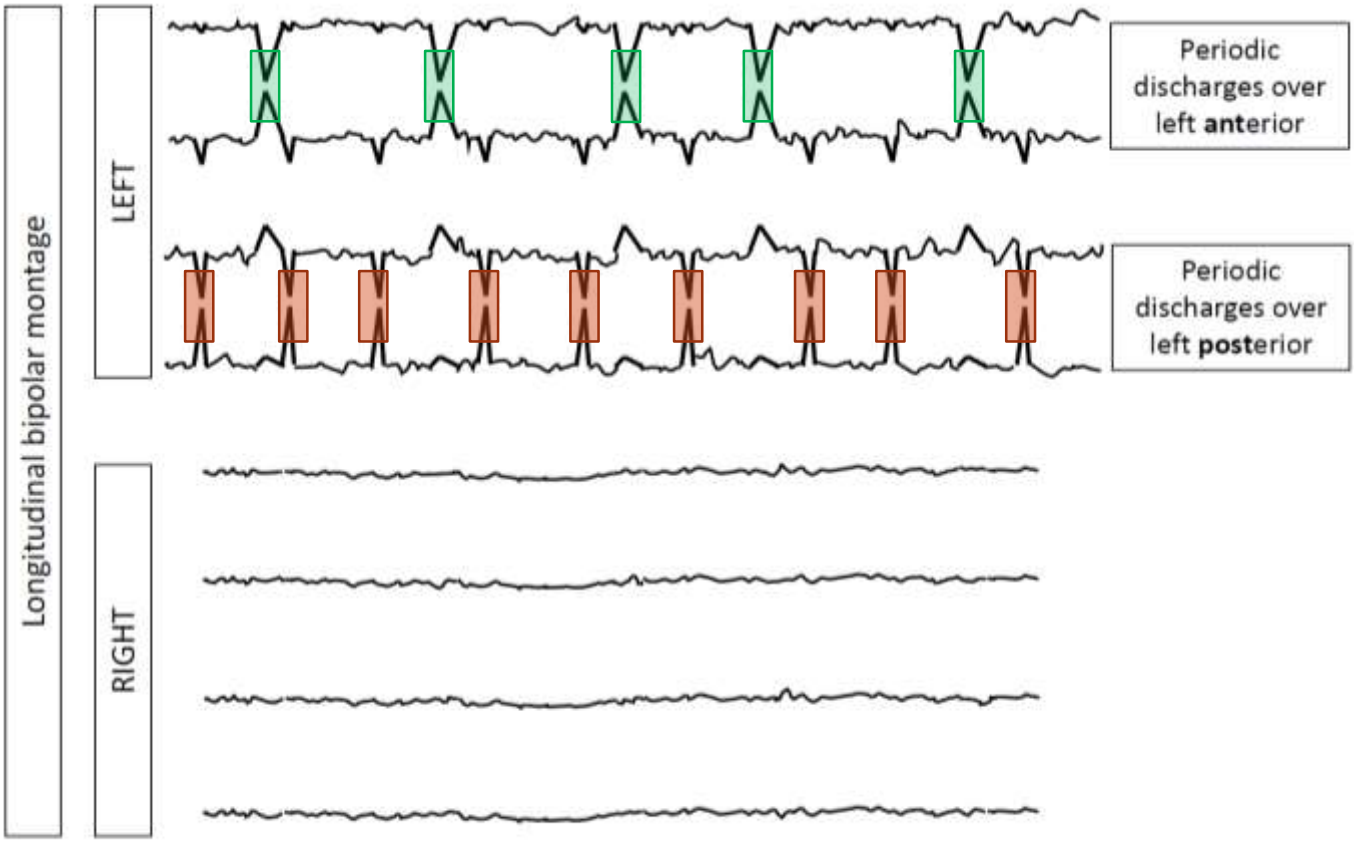
Bilateral senkron simetrik PD frontalde dominant

BİLATERAL BAĞIMSIZ PD



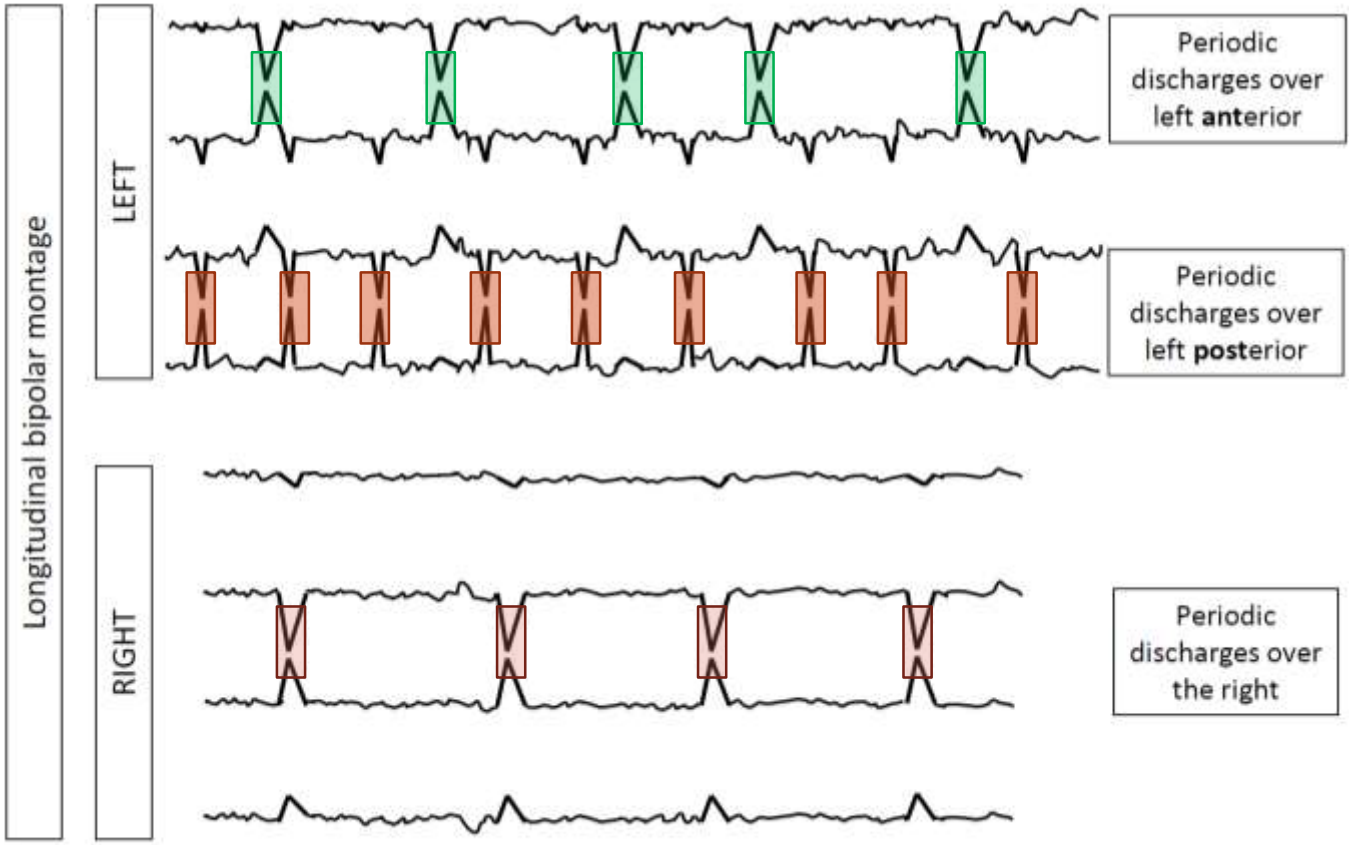
Her hemisferde asenkron
Farklı frekansta deşarjlar

UNİLATERAL BAĞIMSIZ PD ***



Aynı hemisferde ≥ 2 asenkron ve farklı frekansta PD

MULTİFOKAL PD



Her hemisferde en az bir tane olmak koşuluyla
3 bağımsız PD

LATERALİZE PERİYODİK DEŞARJ (LPD)

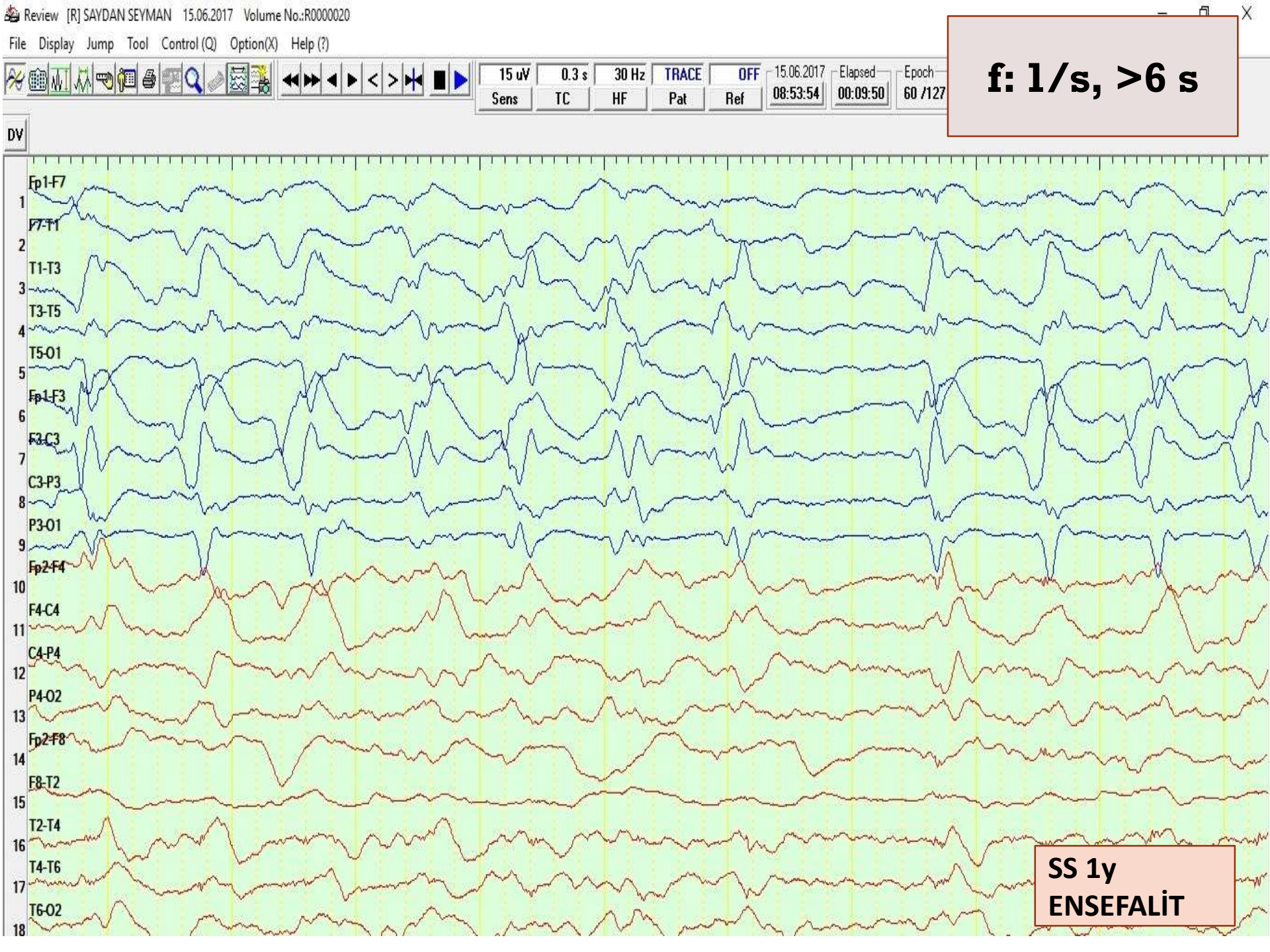
- Bi/multifazik keskin d /diken dalgalar
- Süre 0.1-0.5 s (>0.5 s ise en fazla 3 fazlı)
- Unilateral (hemisferik veya bölgesel)
- Lateralizasyon değişebilir
- İnterval : 0.5- 2 s
- Temel aktivite yaygın yavaş ± düşük amplitüd
- (rutin ayarlarda kaydedilmeyebilir)
- Uyanık/uyku (uyanma ile geçici azalma/kaybolma)

LATERALİZE PERİYODİK DEŞARJ (LPD)

- İnteriktal patern (Epileptojenitesi yüksek)
- LPD ⟷ Fokal iktal aktivite
- Klinik nöbet: EPC
- Etiyoloji: AKUT/ SUBAKUT SEREBRAL LEZYON
- Akut gelişen ağır ensefalopati (erken dönem)
- SSS enfeksiyonu (HSV) , tuberkülom
- SVO , subdural hematom
- Metabolik hastalıklar (MERRF)
- Orak hücreli anemi
- Epilepsi

LPD

- Tüm hastalarda bilinç bozukluğu var***
- Zamanla morfoloji basitleşir
- Amplitüdü azalır
- İnterval giderek uzar
- Kendini sınırlar (günler, 1-3 hf)
- Nadiren yıllarca sürebilir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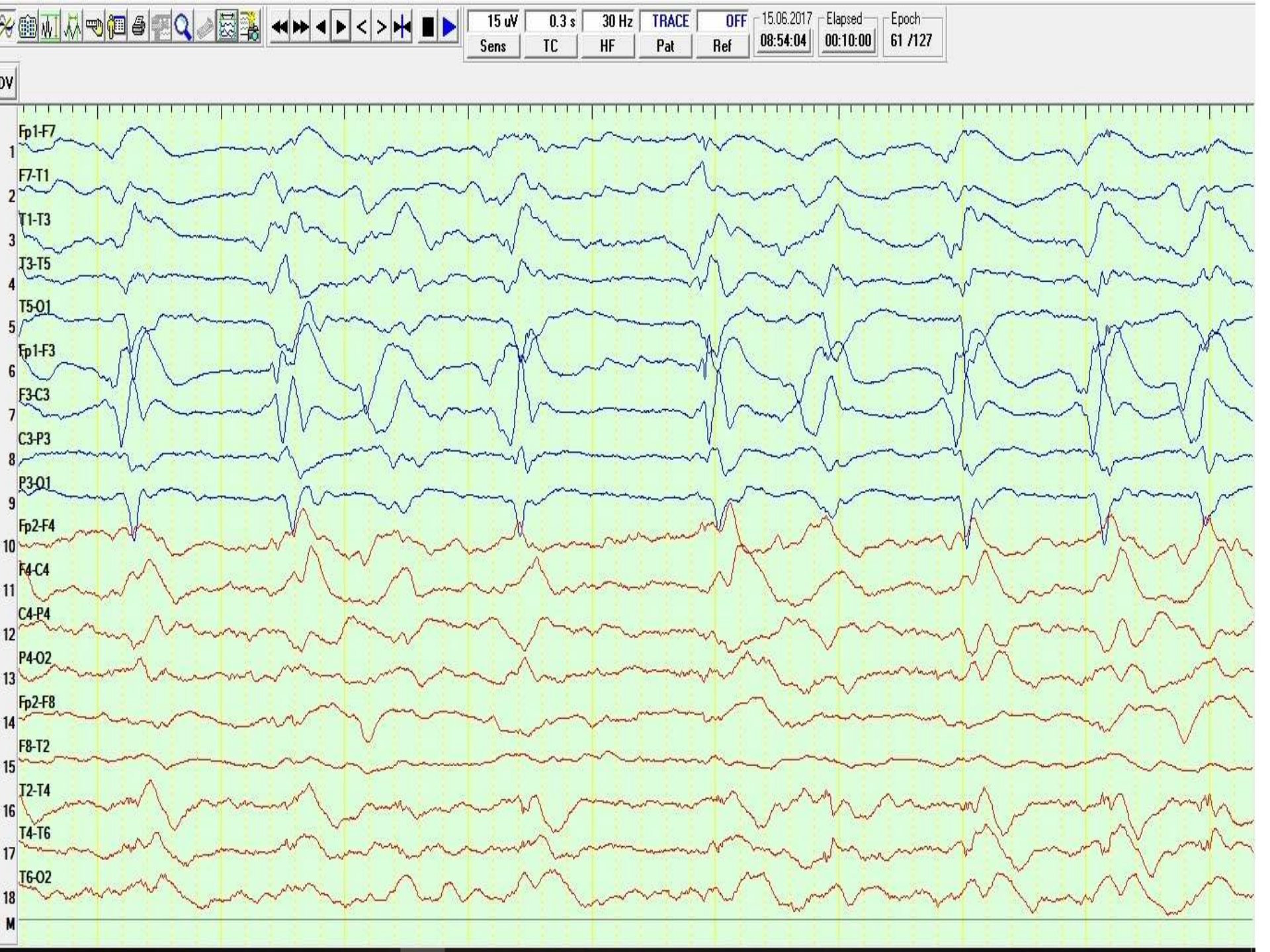
15 uV 0.3 s 30 Hz TRACE OFF
Sens TC HF Pat Ref
15.06.2017 Elapsed Epoch
08:53:54 00:09:50 60 /127
DV
f: 1/s, >6 s
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
SS 1y
ENSEFALİT


15 uV
0.3 s
30 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
15.06.2017
08:54:04
Elapsed
00:10:00
Epoch
61 /127
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
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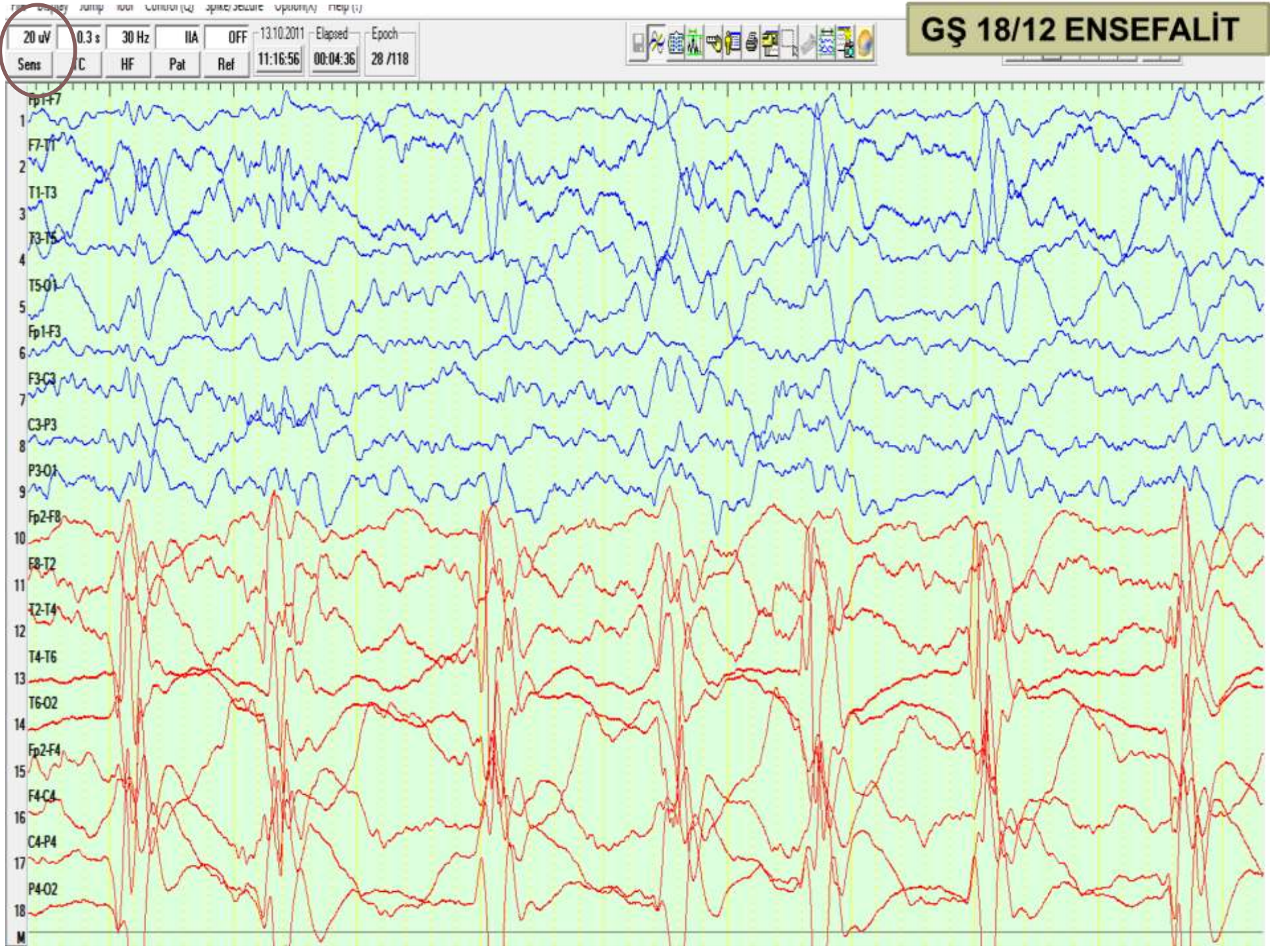
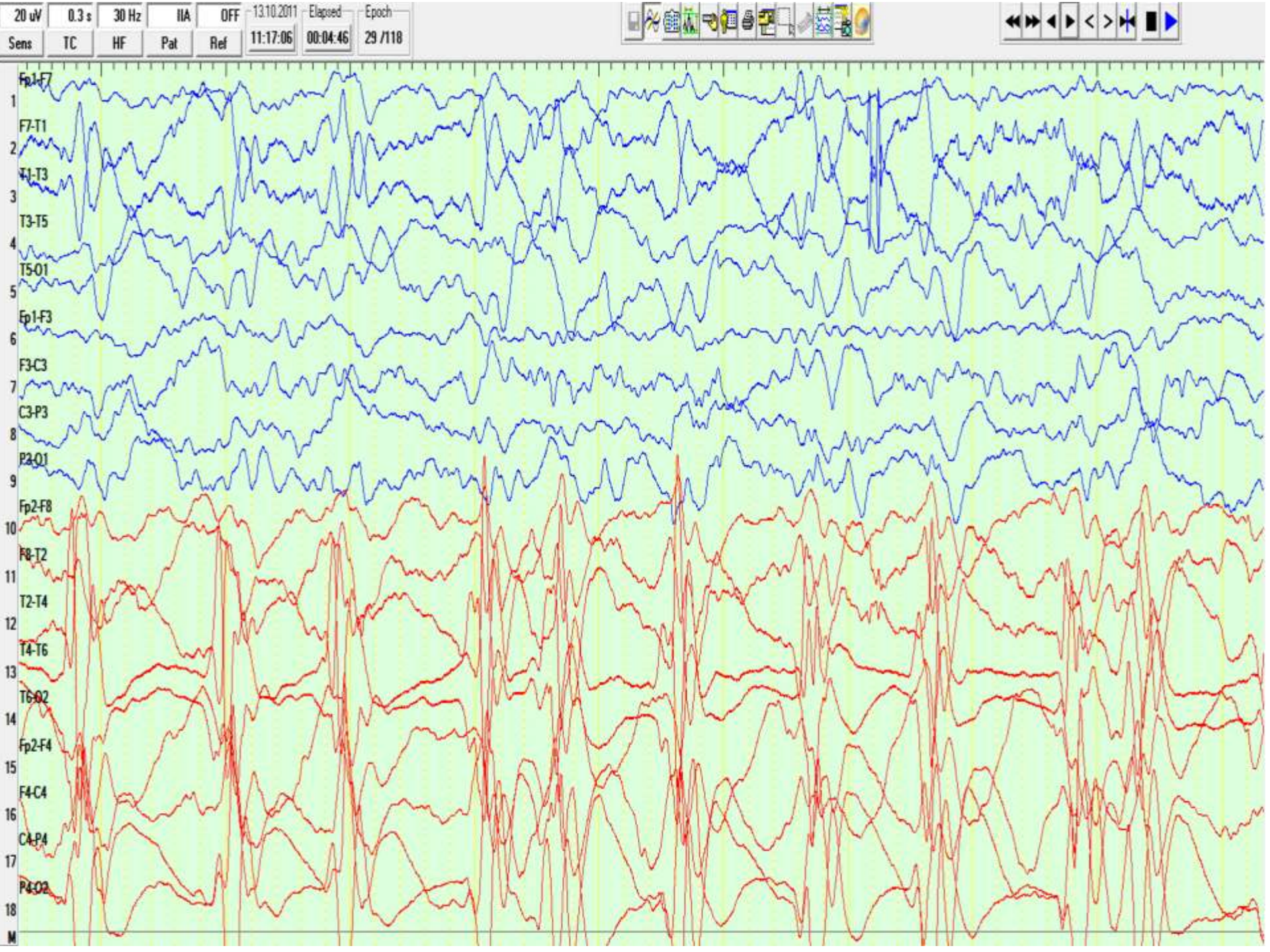
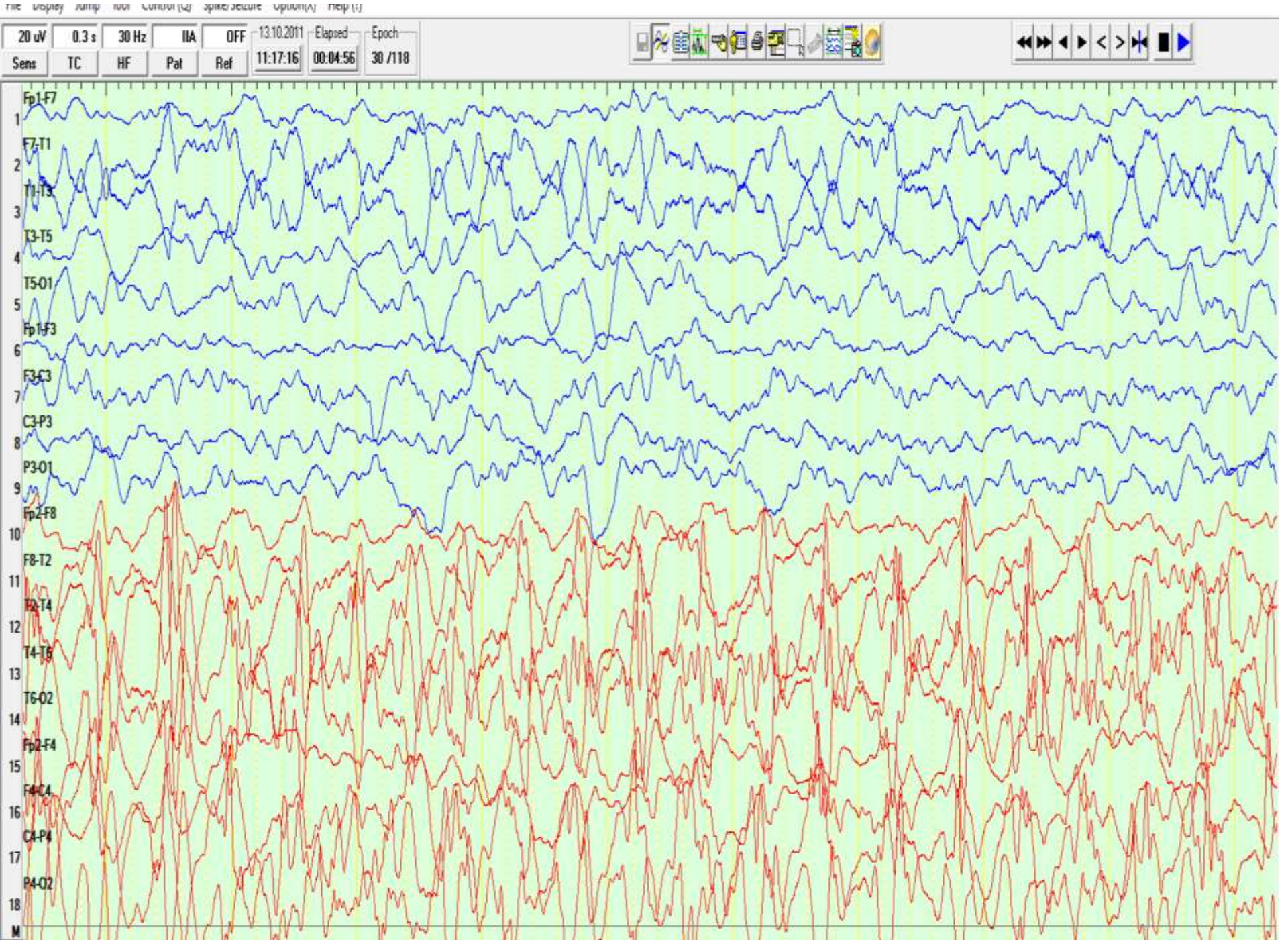

20 uV
0.3 s
30 Hz
IIA
OFF
13.10.2011
Elapsed
Epoch
Sens
TC
HF
Pat
Ref
11:16:56
00:04:36
28 /118
GŞ 18/12 ENSEFALİT
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2


20 uV
0.3 s
30 Hz
IIA
OFF
Sens
TC
HF
Pat
Ref
13.10.2011
11:17:06
Elapsed
00:04:46
Epoch
29 /118
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2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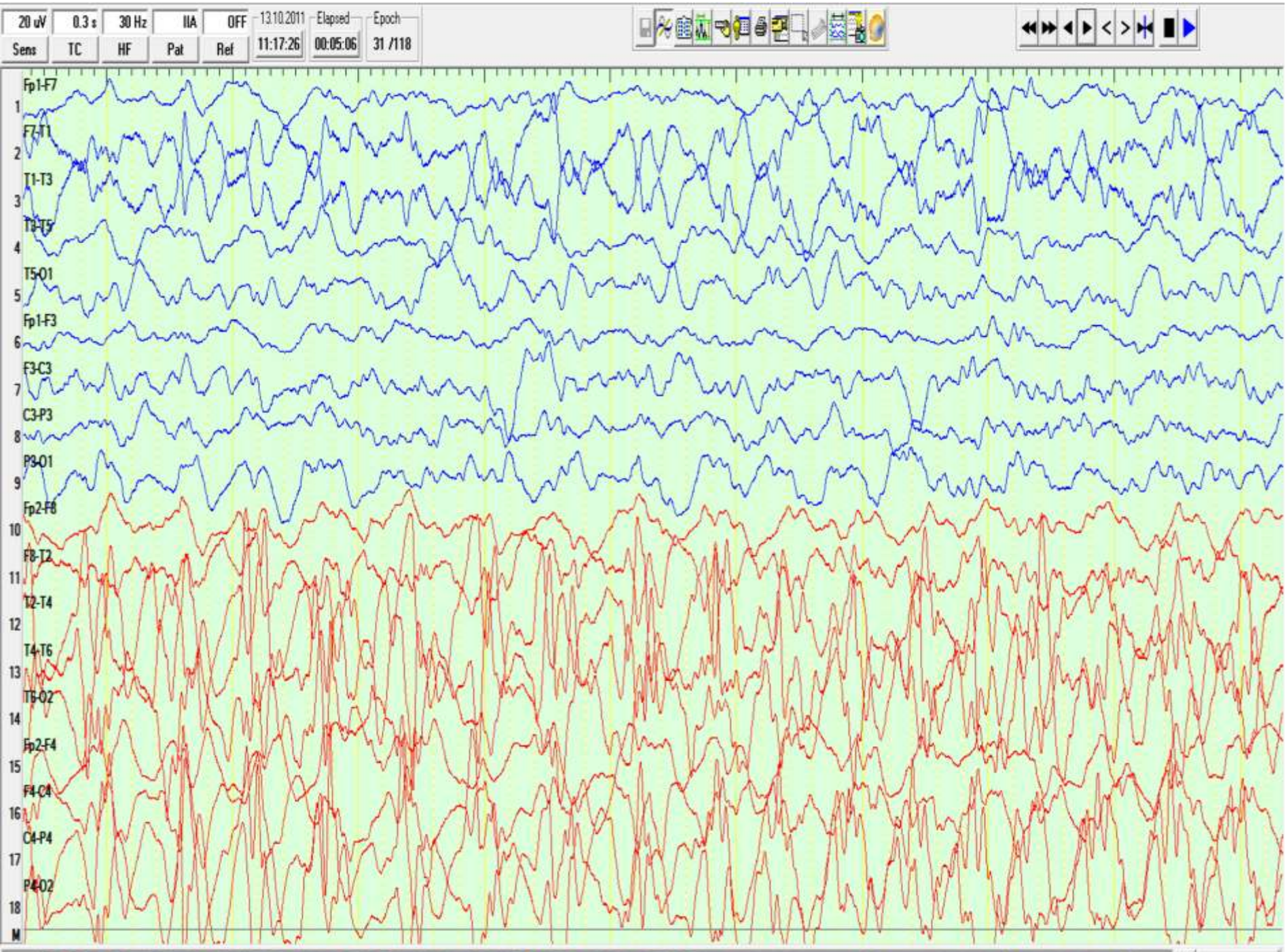
0.3 s
30 Hz
IIA
OFF
Sens
TC
HF
Pat
Ref
13.10.2011
11:17:16
Elapsed
00:04:56
Epoch
30 /118
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2


20 uV
0.3 s
30 Hz
IIA
OFF
Sens
TC
HF
Pat
Ref
13.10.2011
11:17:26
Elapsed
00:05:06
Epoch
31 /118
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2
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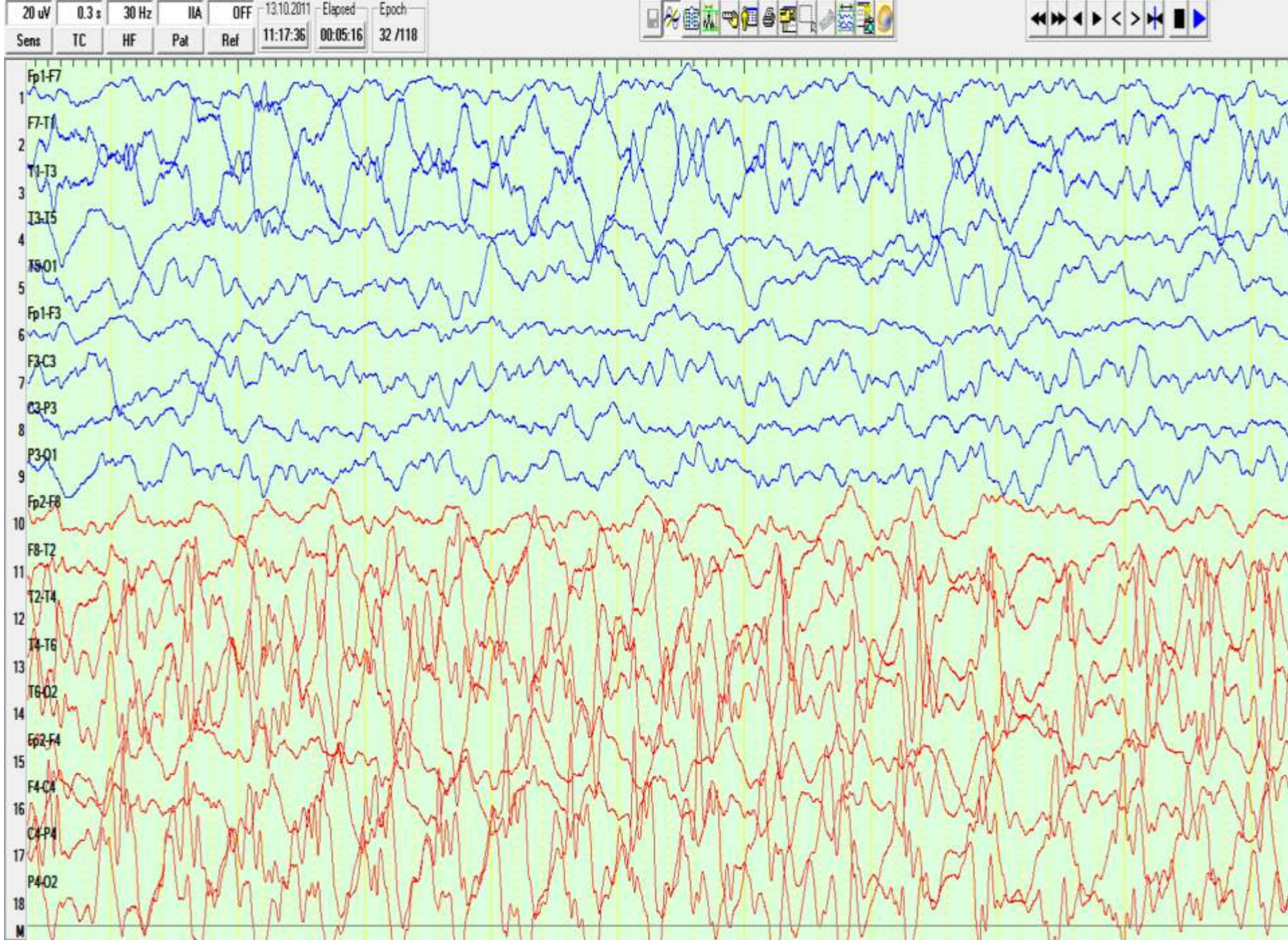
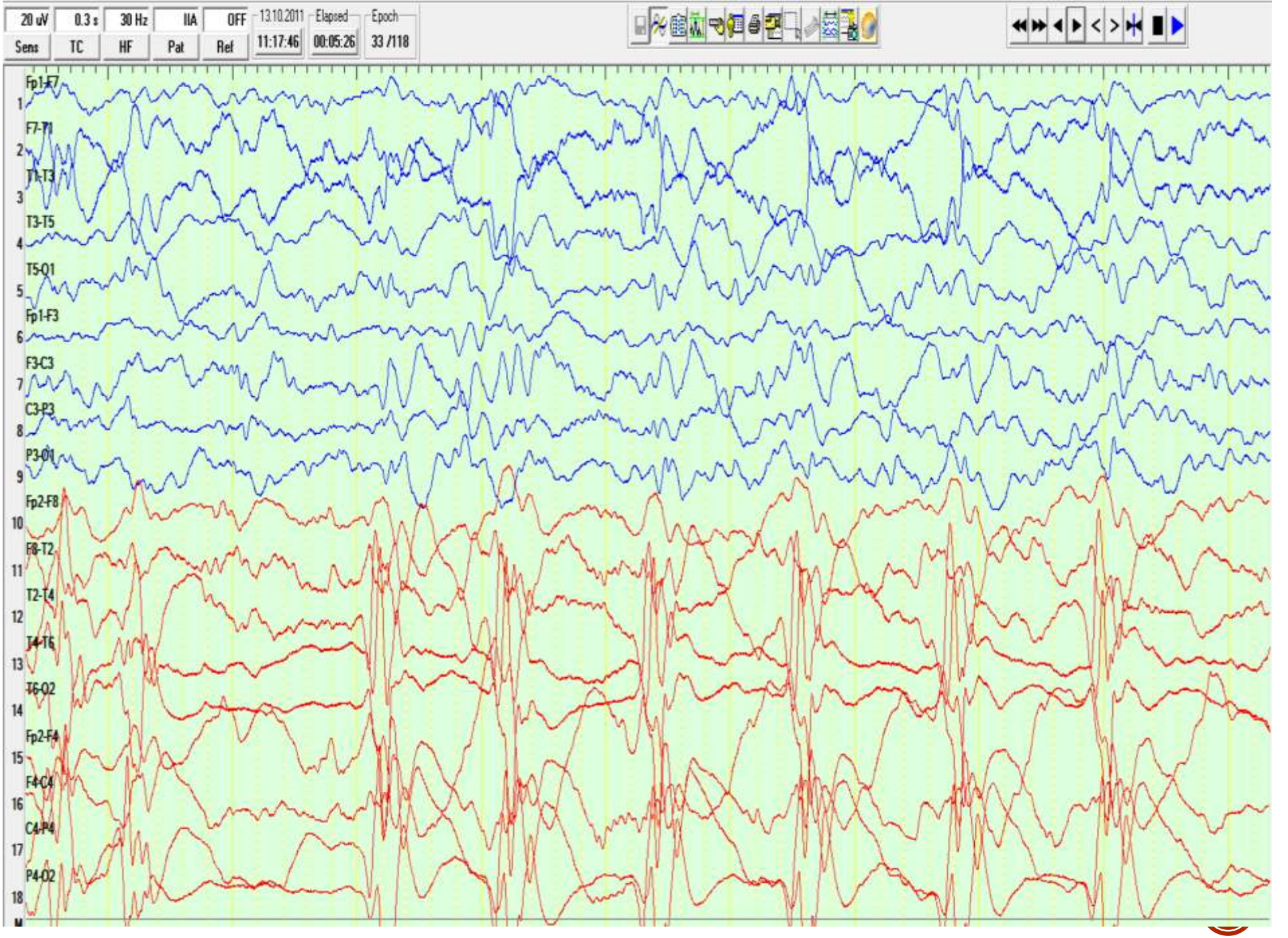

20 uV
0.3 s
30 Hz
IIA
OFF
Sens
TC
HF
Pat
Ref
13.10.2011
11:17:36
Elapsed
00:05:16
Epoch
32 /118
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2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0.3 s
30 Hz
IIA
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Sens
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HF
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13.10.2011
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Elapsed
00:05:26
Epoch
33 /118
Fp1-F7
F7-T1
T1-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F8
F8-T2
T2-T4
T4-T6
T6-O2
Fp2-F4
F4-C4
C4-P4
P4-O2

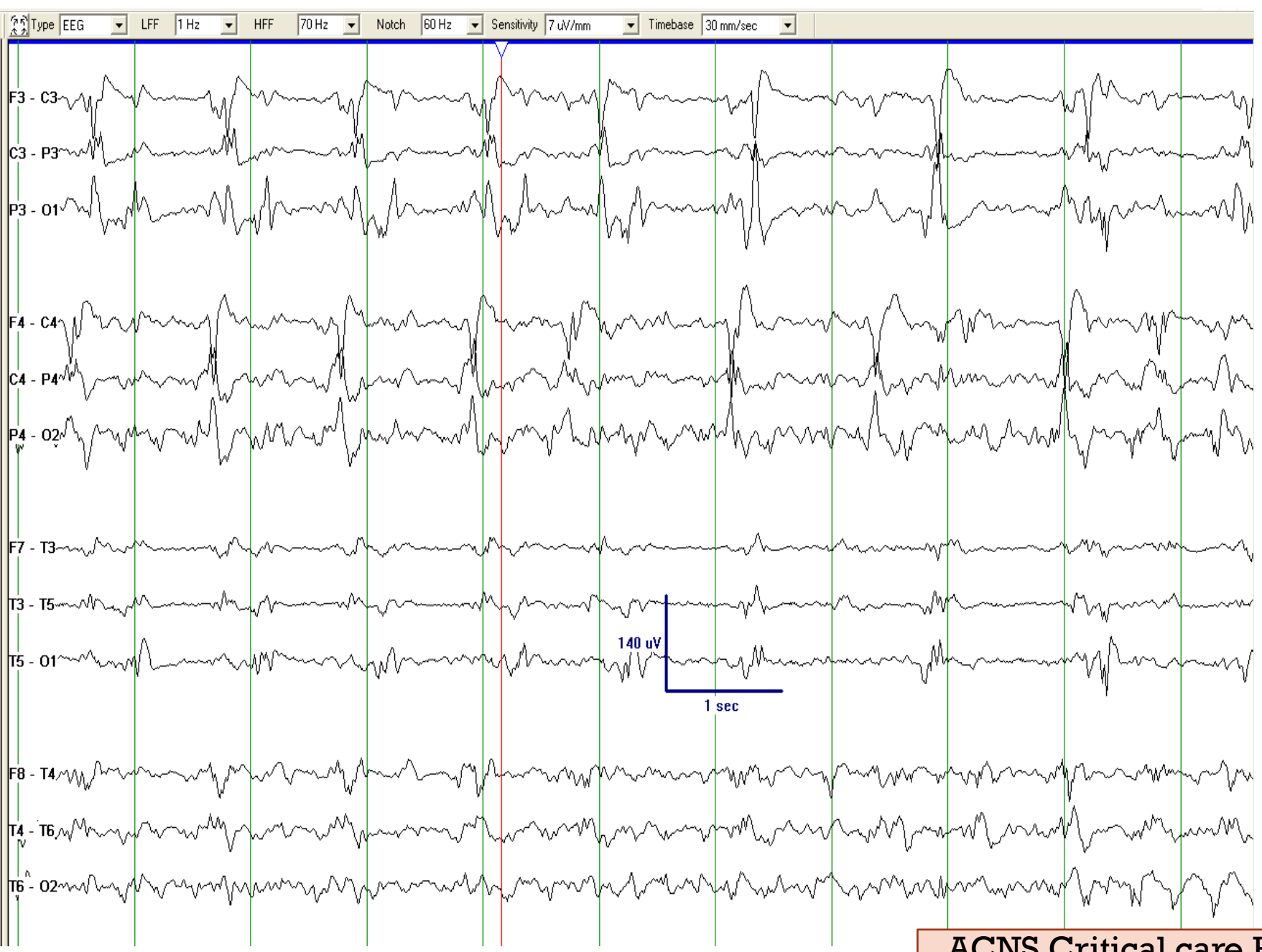
BİLATERAL BAĞIMSIZ PERİYODİK DEŞARJLAR(BIPDs)

- **BİLATERAL (Her iki hemisferde)**
- **Bağımsız periyodik aktivite**
- **Asimetrik (Hemisferler arası amp farkı)**
- **Tek veya çoklu dalga kompleksleri**
- **0.5 s süreli**
- **40-150 µv (bipolar montajda)**
- **Asenkroni ~ 0.5 s**

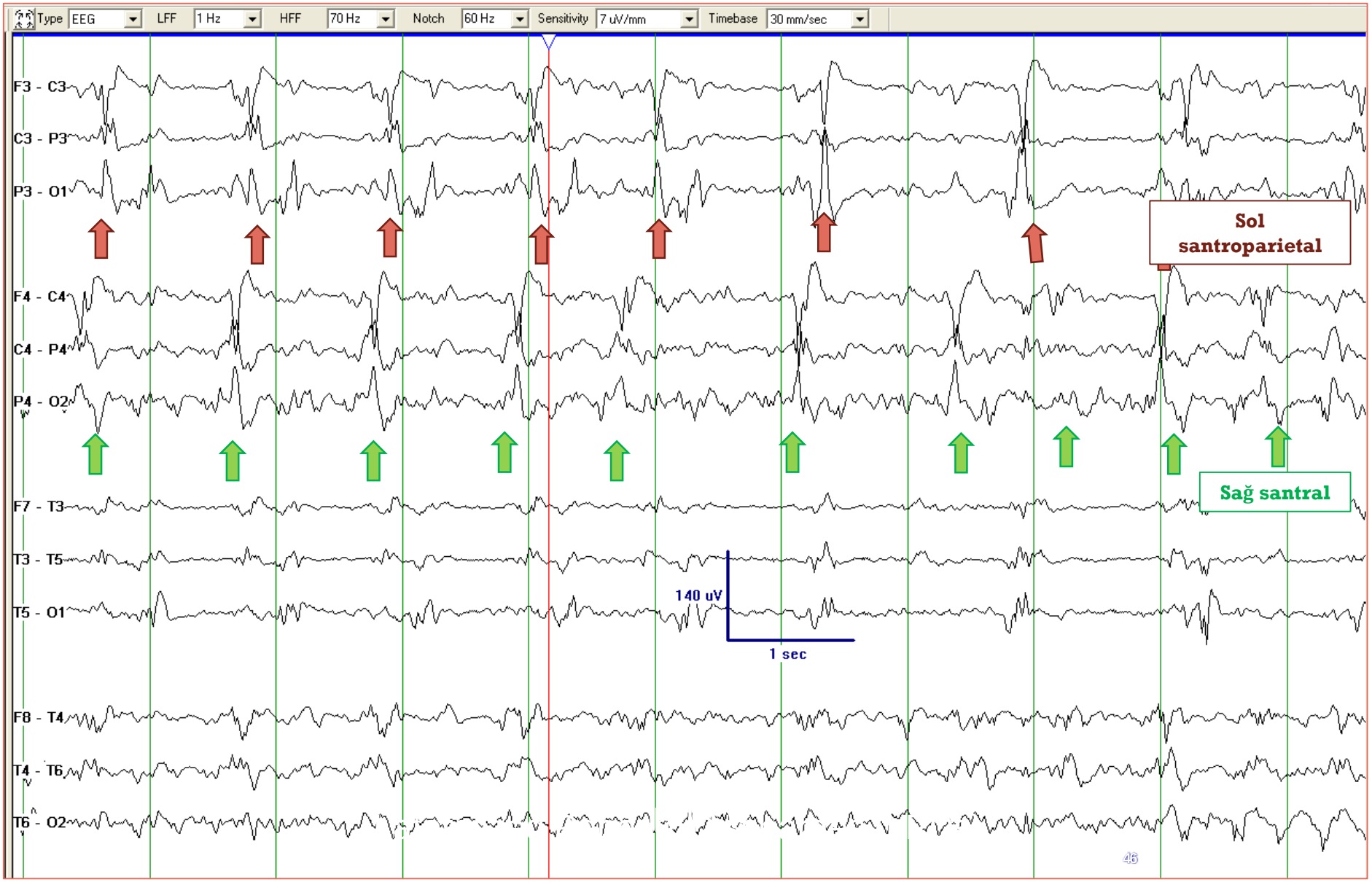
BIPDs

- İnteriktal patern
- Eşzamanlı ya da bağımsız myokloniler

- Yaygın, bilateral, multifokal serebral lezyon
- SSS enf (HSV)
- Postanoksik ansefalopati
- Epilepsi
- Orak hücreli anemi
- Kötü prognoz** mortalite %50

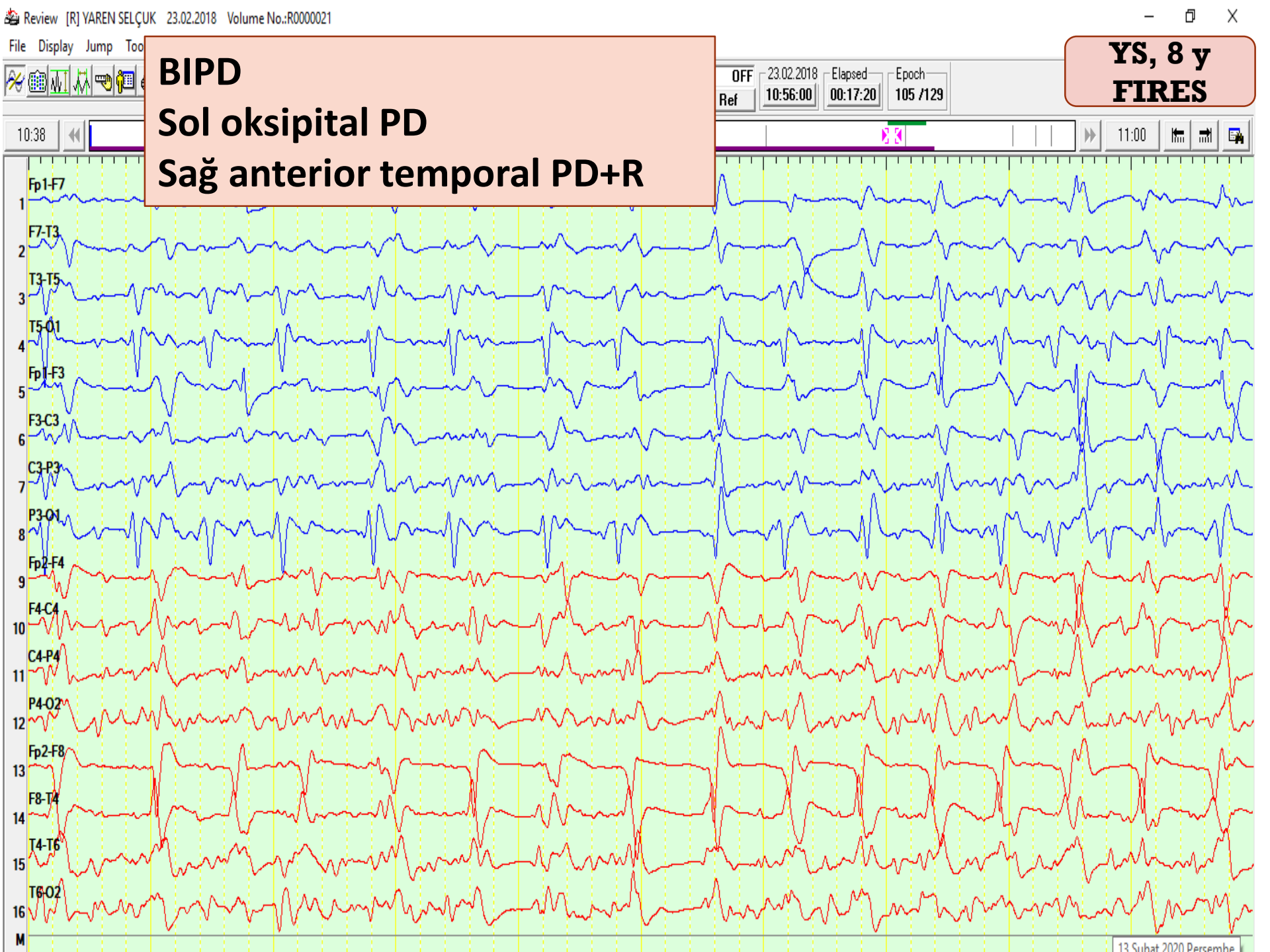


ACNS Critical care EEG terminology 2021



BIPDs

ACNS Critical care EEG terminology 2021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File Display Jump Too
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23.02.2018
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Elapsed
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Epoch
105 /129
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11:00
BIPD
Sol oksipital PD
Sağ anterior temporal PD+R
YS, 8 y
FIRES
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
13 Subat 2020 Persembe


Review [R] YAREN SELÇUK 23.02.2018 Volume No.:R0000021
File Display Jump Tool Control (Q) Option(X) Help (?)
10 uV
0.1 s
15 Hz
TRACE
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Epoch
106 /129
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T3-T5
T5-O1
Fp1-F3
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C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
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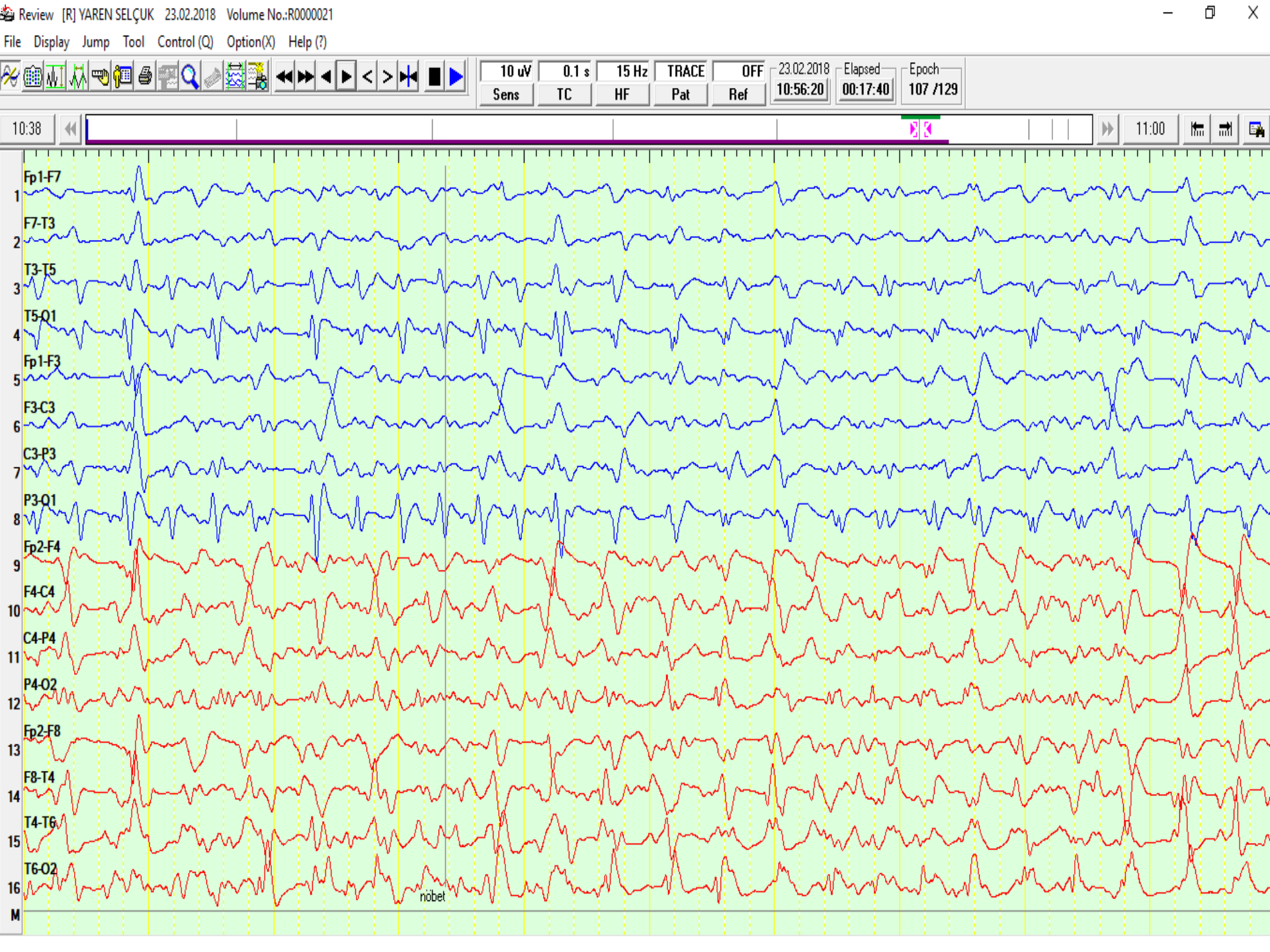
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File Display Jump Tool Control (Q) Option(X) Help (?)
10 uV
Sens
0.1 s
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23.02.2018
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Elapsed
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Epoch
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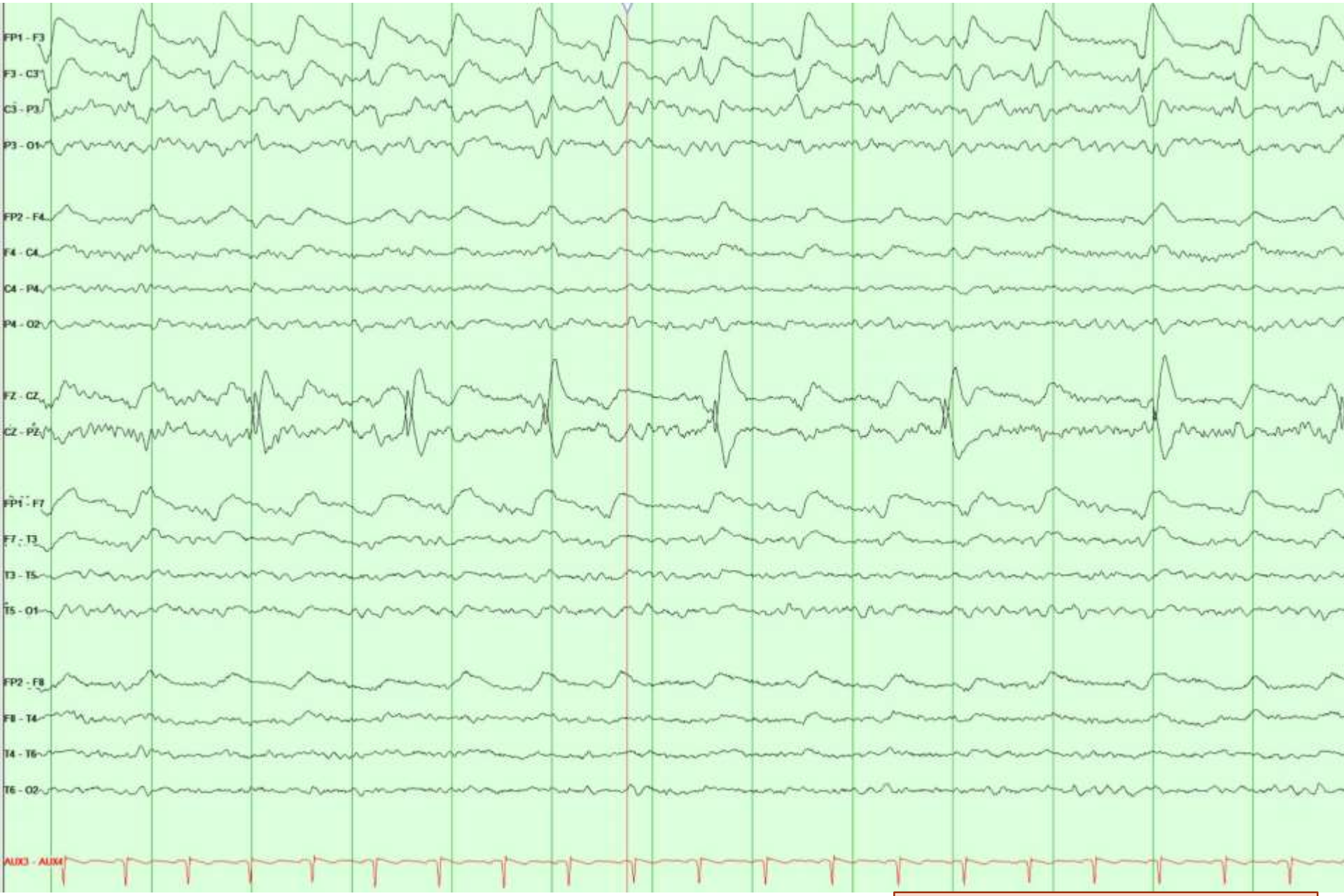
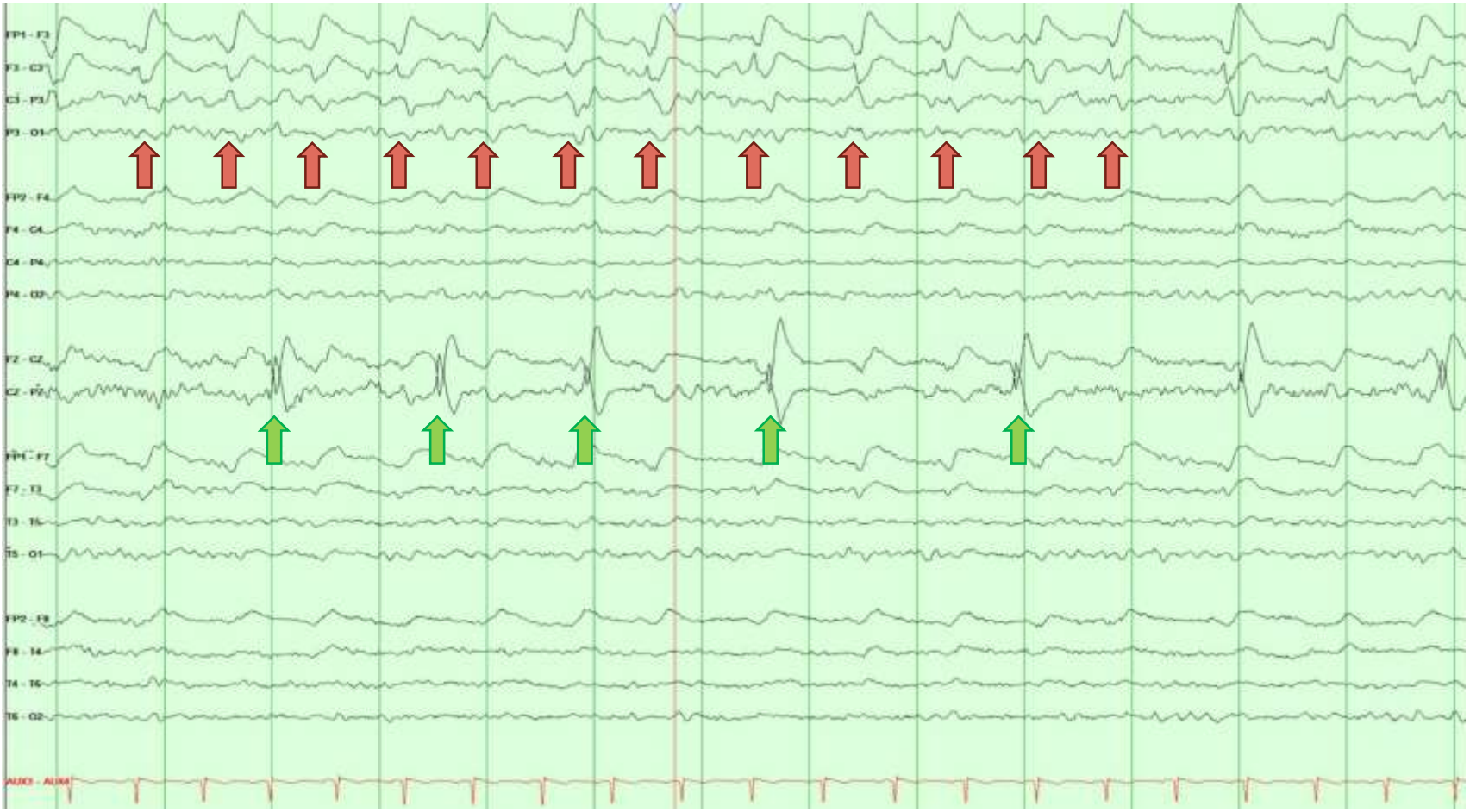
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
nobel



ACNS Critical care EEG terminology 2021



Unilateral bağımsız periyodik deşarjlar UIPDs

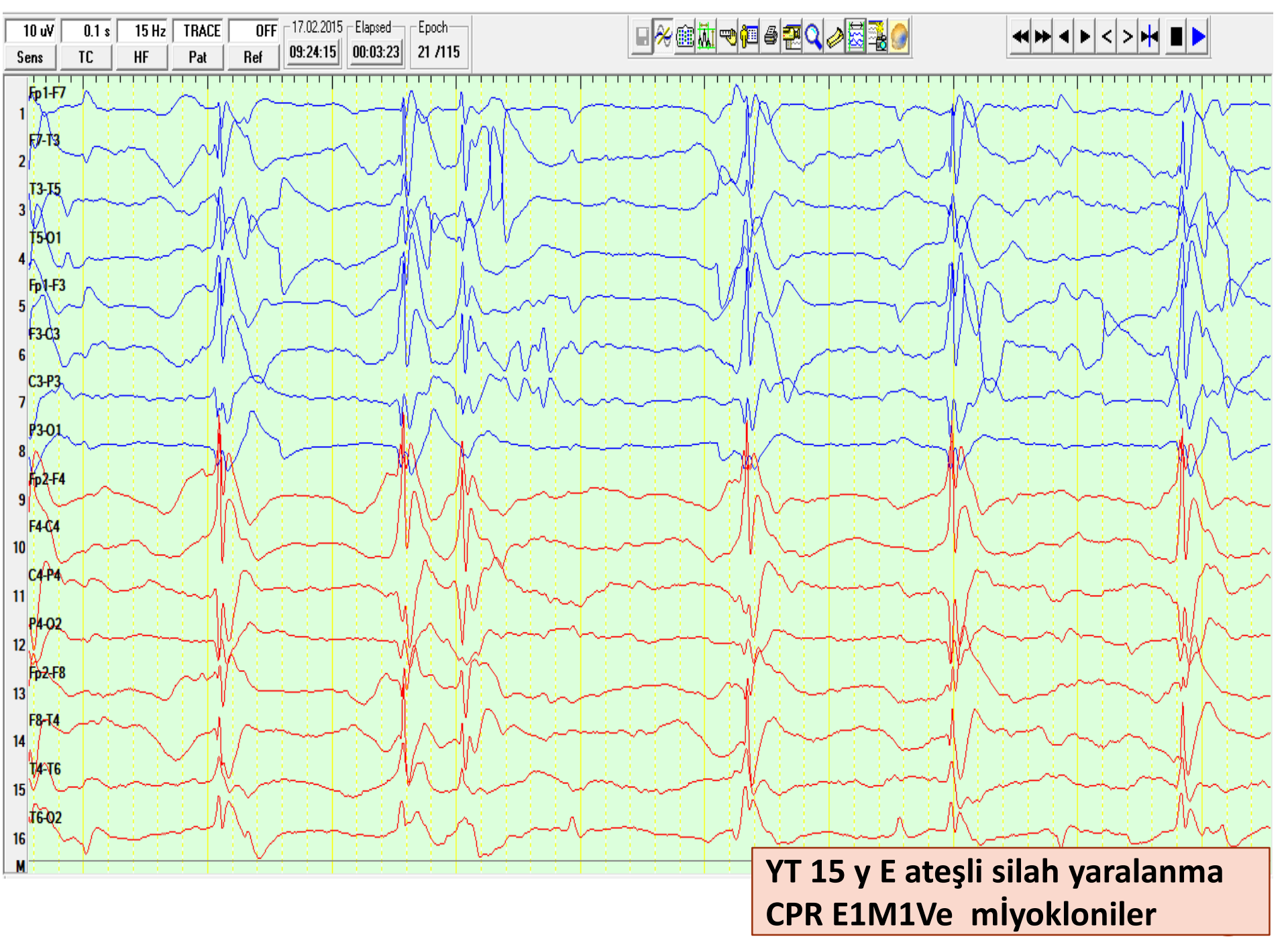
(orange: maximum left frontal, 1.0 Hz; green: maximum at vertex [Cz], 0.5 Hz)

JENERALİZE PERİYODİK DEŞARJLAR (JPD)

- Bi/trifazik keskin d veya diken d
- Jeneralize, senkron
- Süre: 0.15-0.5 s
- İnterval: 0.5-2 s (kısa aralıklı)
- Temel aktivite: yavaş ve düşük amplü
- Uyanıklık/uyku
- Klinik nöbet: myoklonik jerk
- Jacob- Creutzfeld hastalığı
- Anoksik ansefalopati
- Toksik ansefalopati

JENERALİZE PERİYODİK DESARJLAR (JPD)

- **ICU sürekli EEG monitorizasyonu**
- **Konvülsif SE barbitürat dozu azaltmada**
- **SE sup burst / supresyon süresi kısalır**
- **Nonkonvülsif (elektrografik) / klinik nb habercisi******
- **İktal/interiktal continuum****


10 uV
0.1 s
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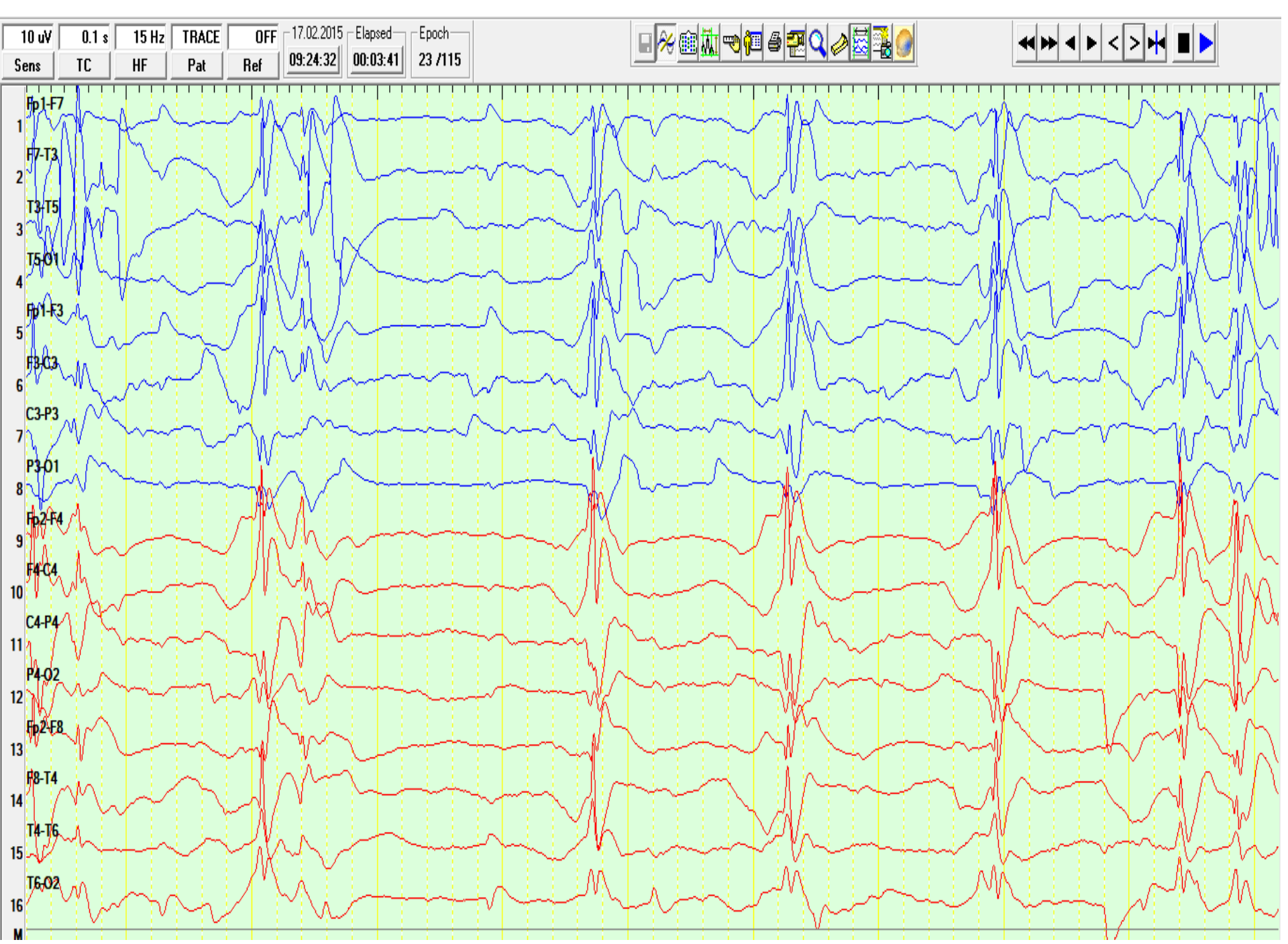
Epoch
21 /115
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
YT 15 y E ateşli silah yaralanma
CPR E1M1Ve miyokloniler


10 uV
0.1 s
15 Hz
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Sens
TC
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17.02.2015
09:24:32
Elapsed
00:03:41
Epoch
23 /115
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
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File Display Jump Tool Control (Q) Spike/Seizure Option(X) Help (?)
10 uV
0.1 s
15 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
18.02.2015
15:41:31
Elapsed
00:17:24
Epoch
105 /121
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
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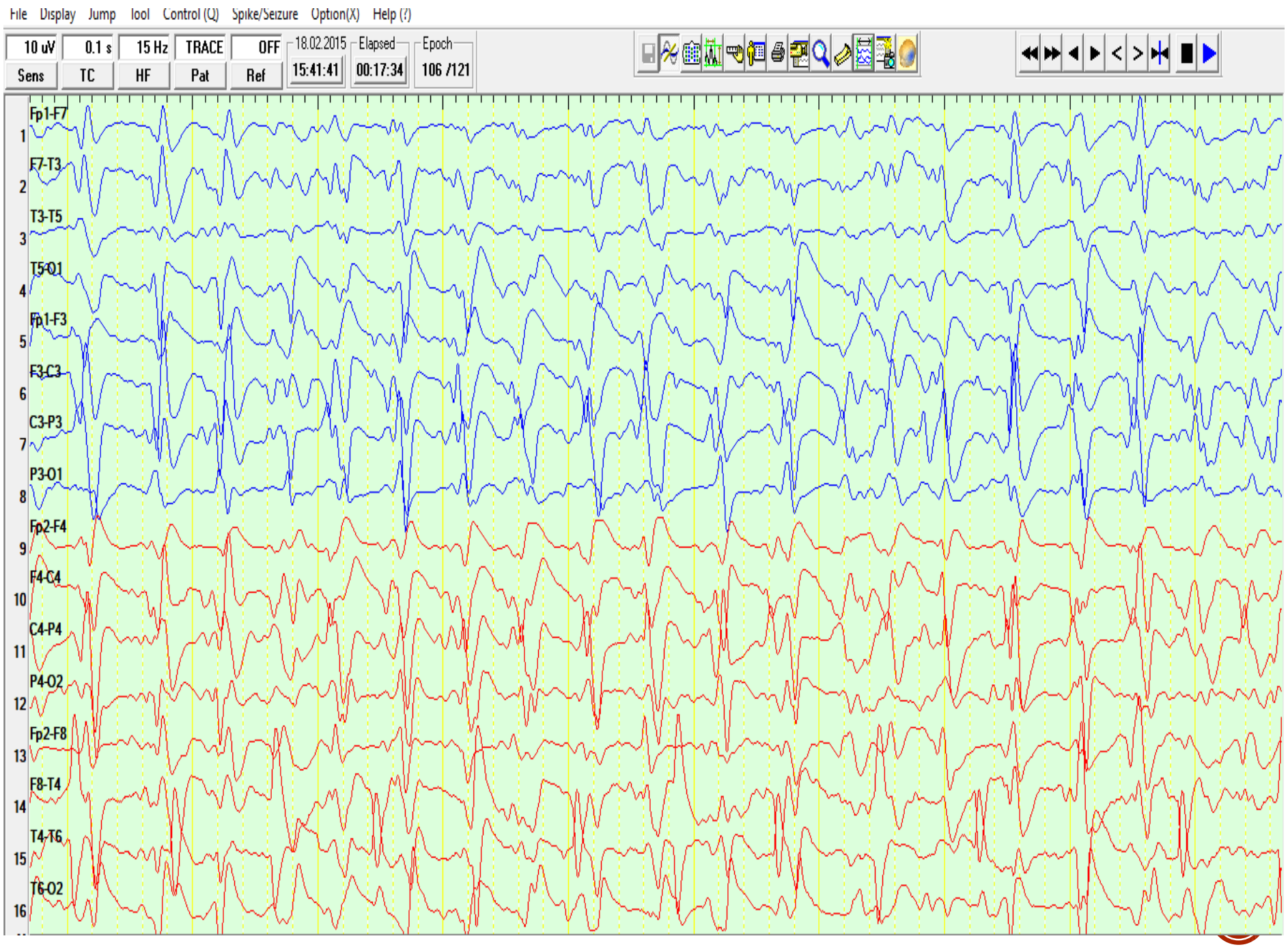
File Display Jump Tool Control (Q) Spike/Seizure Option(X) Help (?)
10 uV
0.1 s
15 Hz
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Sens
TC
HF
Pat
Ref
18.02.2015
15:41:41
Elapsed
00:17:34
Epoch
106 /121
1 Fp1-F7
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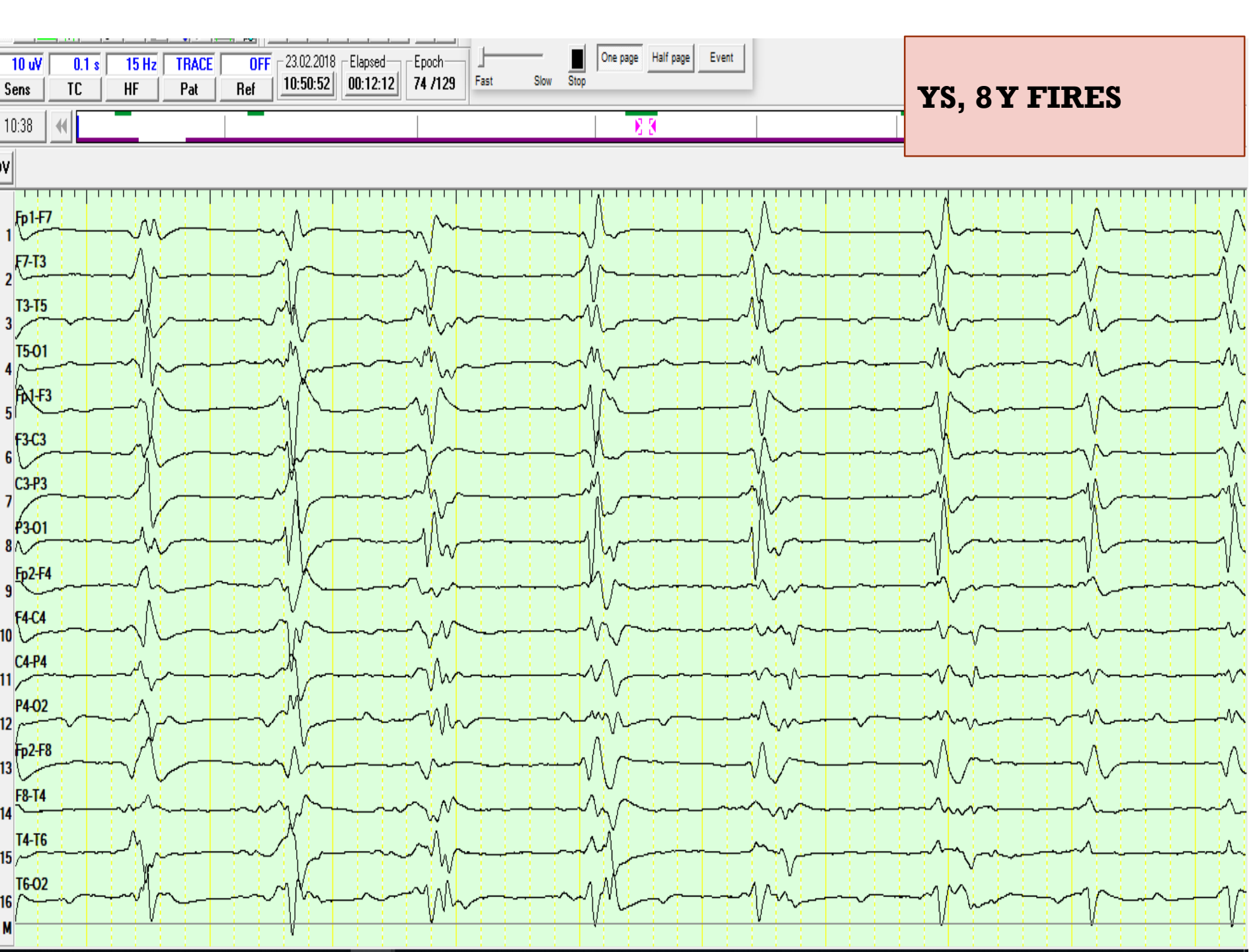
3 T3-T5
4 T5-O1
5 Fp1-F3
6 F3-C3
7 C3-P3
8 P3-O1
9 Fp2-F4
10 F4-C4
11 C4-P4
12 P4-O2
13 Fp2-F8
14 F8-T4
15 T4-T6
16 T6-O2


10 uV
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15 Hz
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Sens
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Elapsed
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Epoch
74 /129
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One page
Half page
Event
10:38
YS, 8 Y FIRES
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
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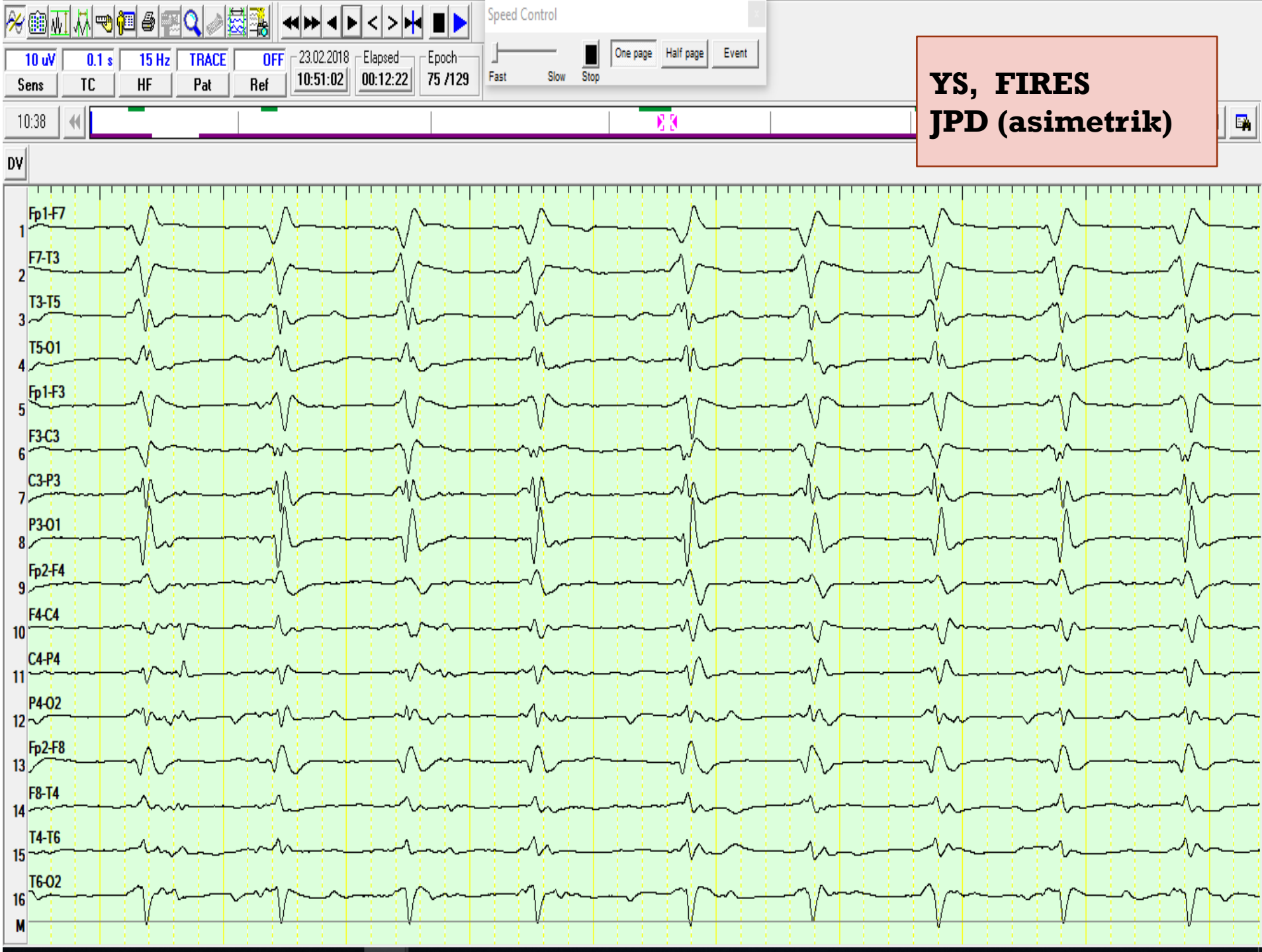
Speed Control
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0.1 s
15 Hz
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Sens
TC
HF
Pat
Ref
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Elapsed
00:12:22
Epoch
75 /129
Fast
Slow
Stop
One page
Half page
Event
10:38
DV
YS, FIRES
JPD (asimetrik)
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
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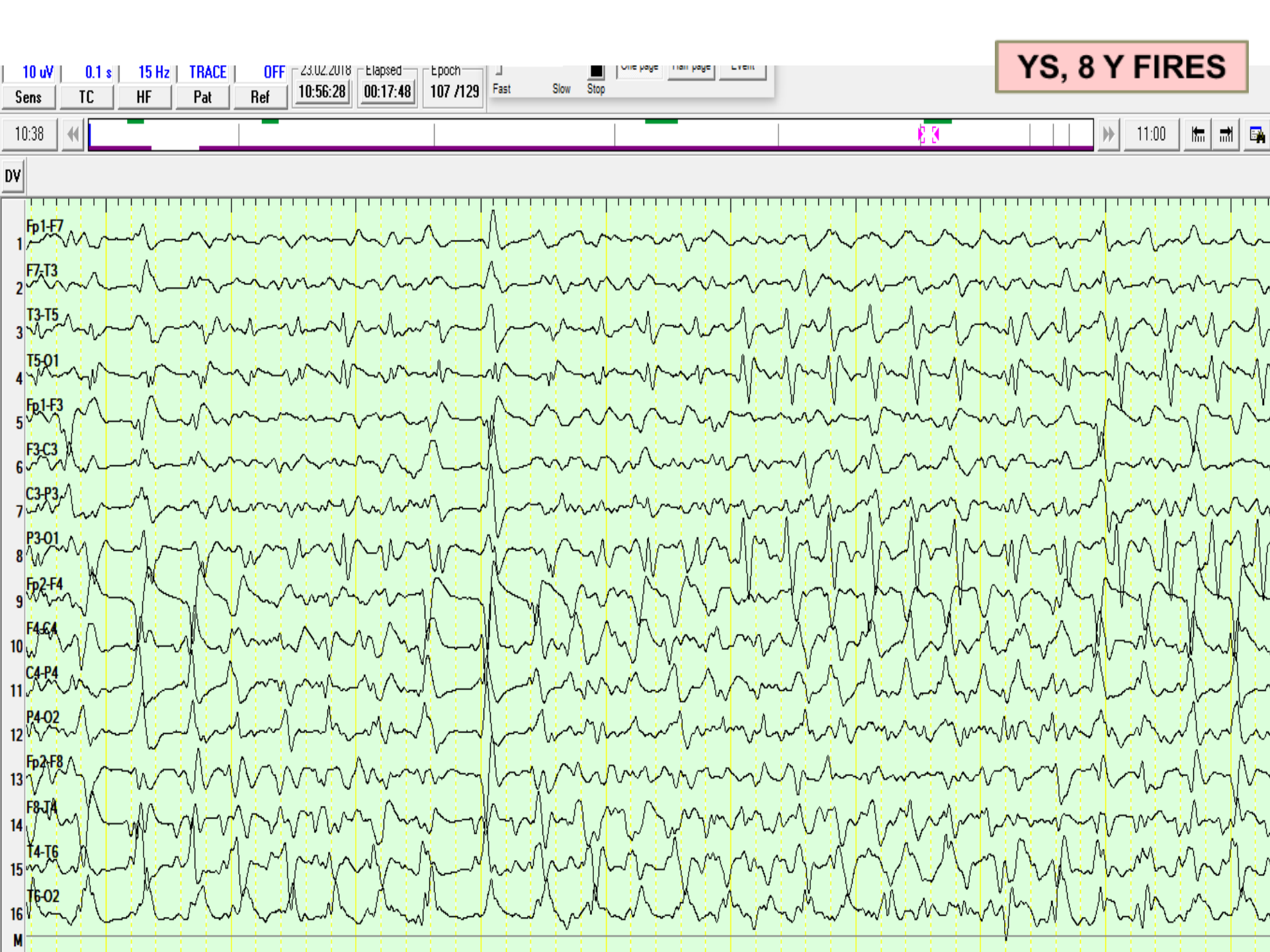
YS, 8 Y FIRES
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0.1 s
15 Hz
TRACE
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Sens
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HF
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Ref
23.02.2018
10:56:28
Elapsed
00:17:48
Epoch
107 /129
Fast
Slow
Stop
10:38
11:00
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Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
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10 uV
0.1 s
15 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
23.02.2018
10:56:38
Elapsed
00:17:58
Epoch
108 /129
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Stop
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Half page
Event
10:38
YS, 8 Y FIRES
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Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
M

THE ICTAL-INTERICTAL CONTINUUM (IIC)
İKTAL/İNTERİKTAL SÜREÇ

- Sinonimi Olası elektrografik nb veya SE
- Elektrografik tanımlamadır, tanı değildir
- Bilinç bozukluğu/diğer klinik bulgulara katkıda bulunabilecek bir özelik
- Bazı durumlarda iktal aktiviteye işaret edebilir
- Parenteral ANİ uygulaması ile değerlendirme öneriliyor
- Henüz tam fikirbirliği oluşmamış

THE ICTAL-INTERICTAL CONTINUUM (IIC)
İKTAL/İNTERİKTAL SÜREÇ

a. Herhangi bir PD veya SW paterni Frekans: > 1 Hz- ≤ 2.5 Hz

(10 s içinde 10- 25 deşarj varsa)

b. Herhangi PD or SW paterni Frekans: ≥ 0.5- ≤ 1 Hz

(10 s içinde 5-10 deşarj varsa) +

ve modifier veya fluktuasyonla (frekans, morfoloji/lokalizasyon) birlikteyse

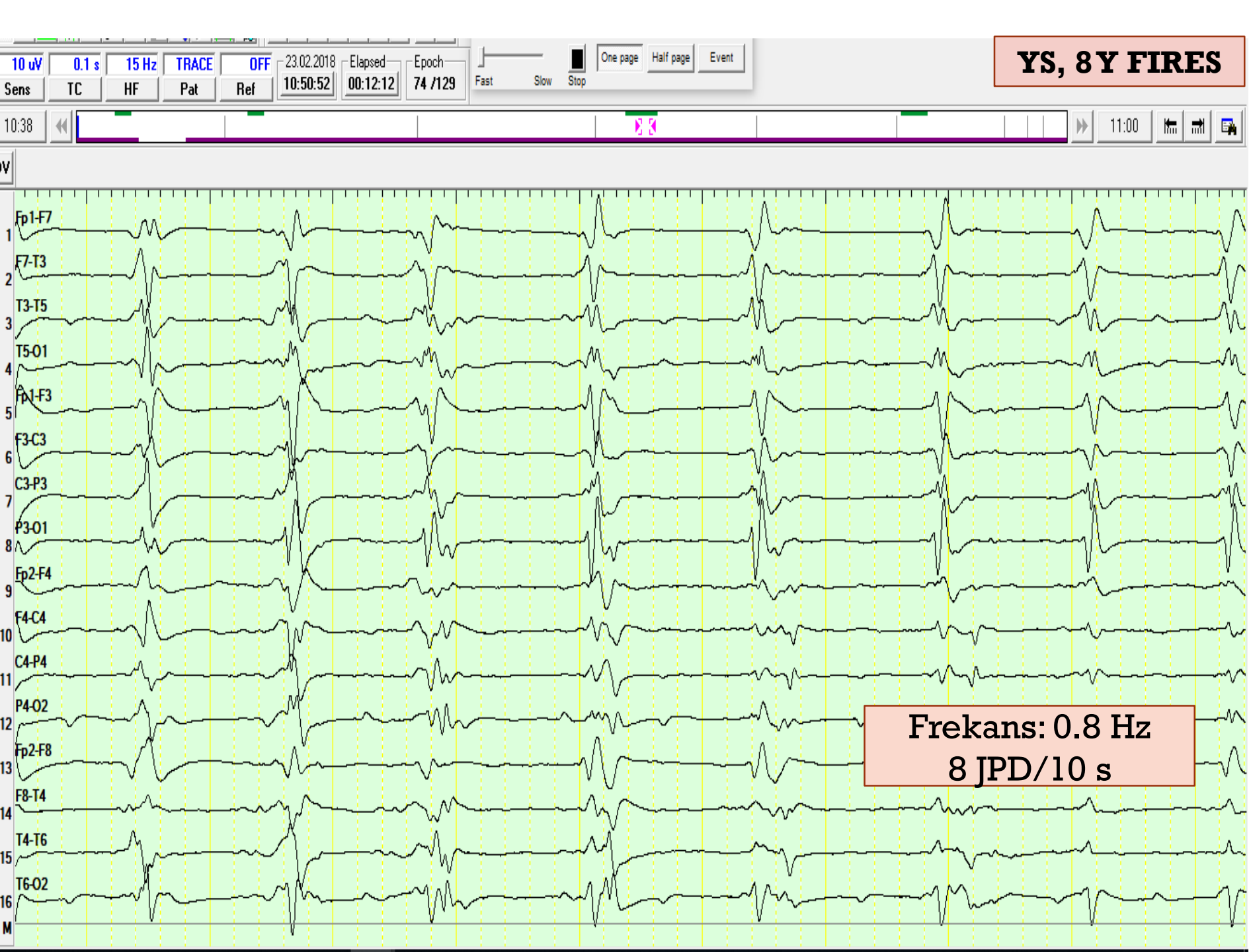
c. Herhangi bir RDA frekansı > 1 Hz (≥ 10 deşarj/10 s) +

ve modifier veya fluktuasyonla beraberse

Modifier: PD: + F ast + R itmik delta

RDA: + F ast + S harp

SW: modifier yok ***


YS, 8 Y FIRES
10 uV
0.1 s
15 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
23.02.2018
10:50:52
Elapsed
00:12:12
Epoch
74 /129
Fast
Slow
Stop
One page
Half page
Event
10:38
11:00
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
1
2
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8
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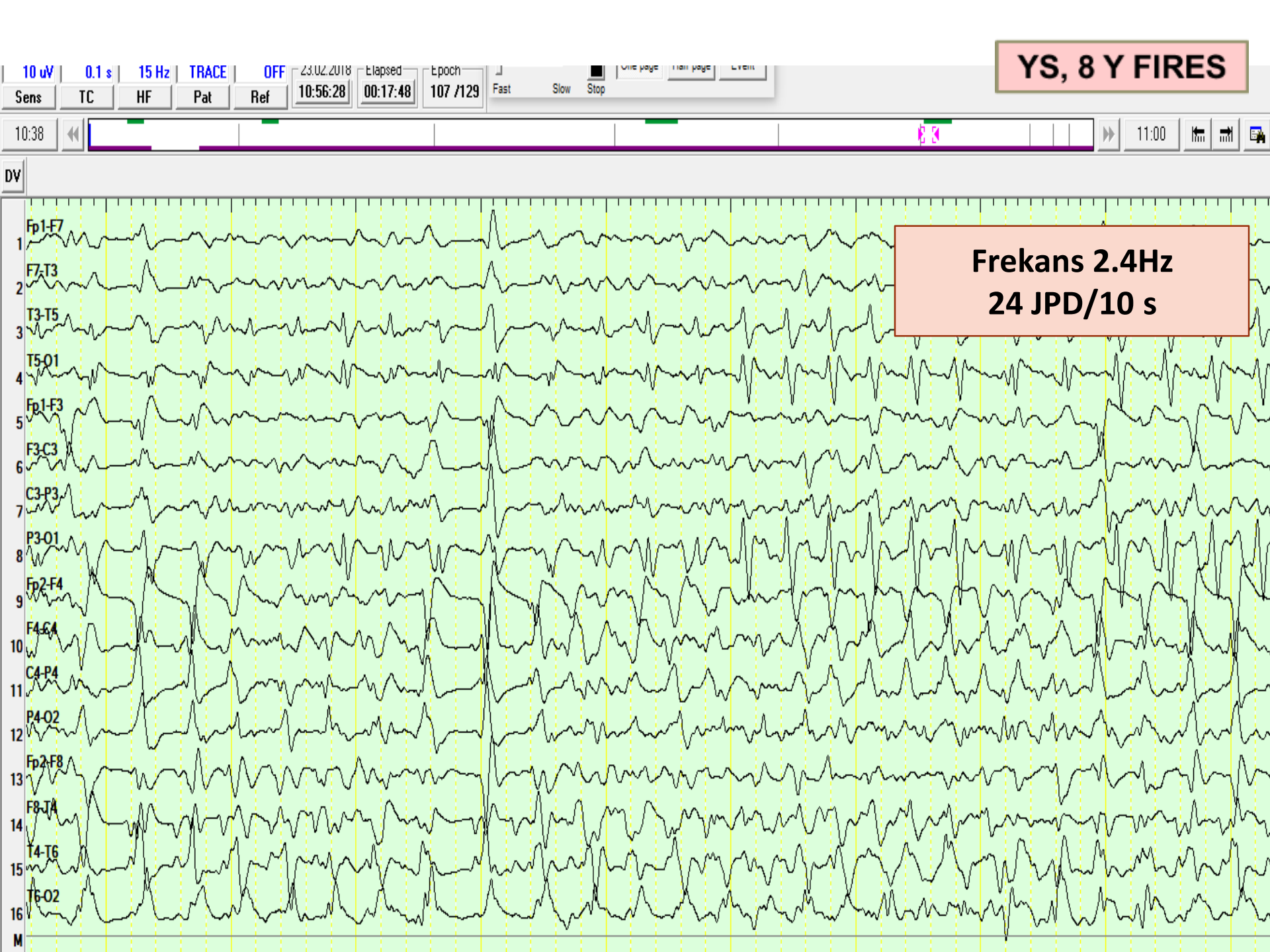
10
11
12
13
14
15
16
M
Frekans: 0.8 Hz
8 JPD/10 s


YS, 8 Y FIRES
10 uV
0.1 s
15 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
23.02.2018
10:56:28
Elapsed
00:17:48
Epoch
107 /129
Fast
Slow
Stop
10:38
11:00
DV
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
M
Frekans 2.4Hz
24 JPD/10 s

Neurocrit Care (2024) 41:418–425
https://doi.org/10.1007/s12028-024-01978-4

NEUROCRITICAL CARE SOCIETY

ORIGINAL WORK

Ictal–Interictal Continuum in the Pediatric Intensive Care Unit

Arnold J. Sansevere[1*], Julia S. Keenan[1], Elizabeth Pickup[1], Caroline Conley[1,2], Katelyn Staso[1,2] and Dana B. Harrar[1]

201 hasta min 24 s CEEG monitoirizasyonu

RPP 42/201 (%21) IIC 24/201 (%12) : hepsinde RPP

IIC 24 hasta 16 tek kriter, diğer >≥ 2 kriter

23/24: akut nöroradyolojik hasar bulgusu

RPP/IIC: Serebral hasar göstergesi (OR: 3.5 vs 26)

Elektrografik nb RPP : %55

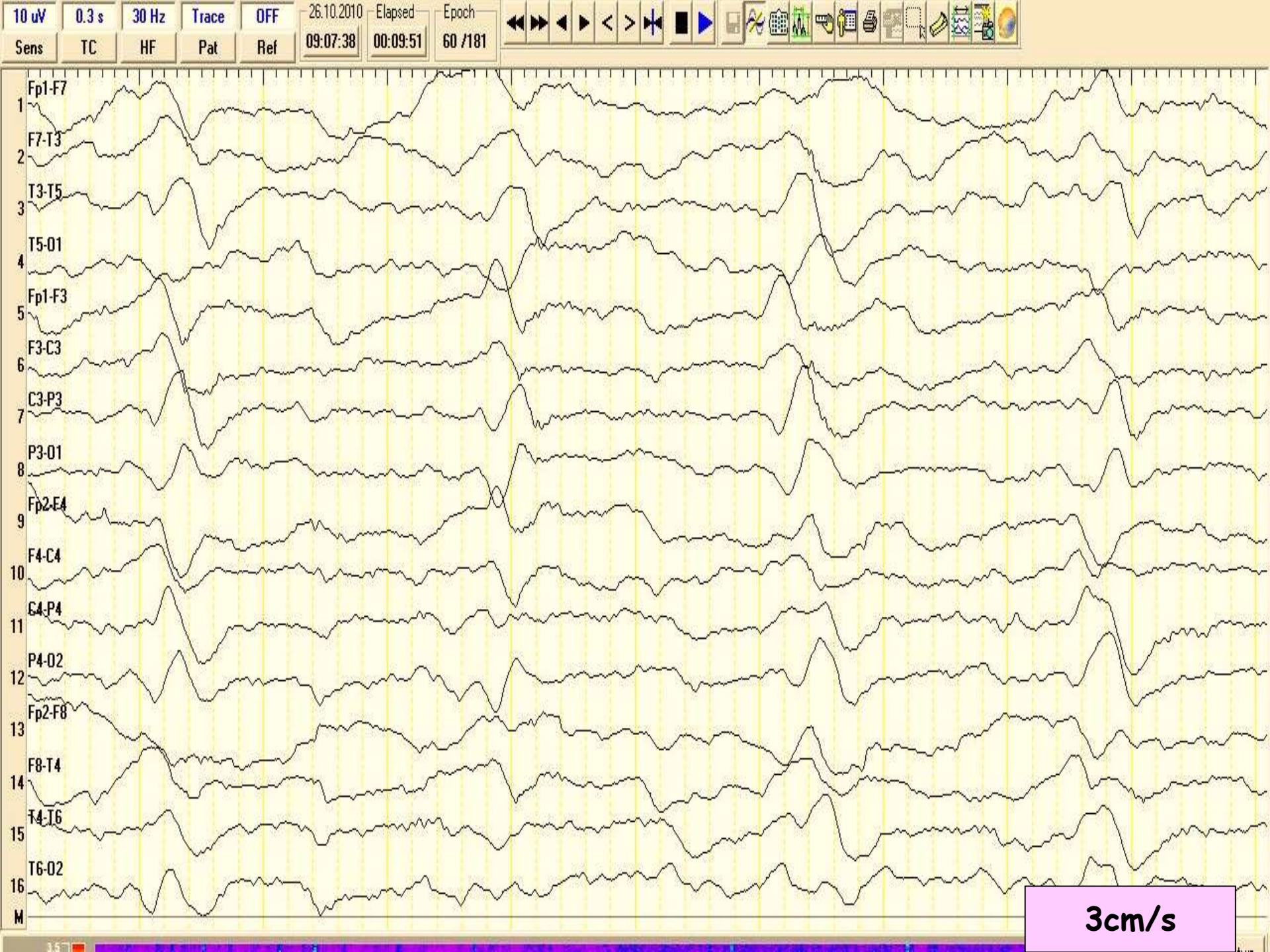
IIC : %79 (%58 IIC nöbetten önce)**

IIC & Elektrografik nb * (OR:121, p <0.0001)*****

RPP% Enb (p=0.7)

JENERALİZE PERİYODİK KOMPLEKS

- Yüksek amplü polifazik keskin ve yavaş d kompleksleri
- Jeneralize senkron
- Süre: 0.15-0.6 s
- İnterval: 5-10 s (uzun aralıklı)
- Aynı kayıtta interval oldukça sabit!!!
- Temel aktivite: yaygın düşük amplü yavaş d
- Klinik: miyoklonik jerkler
- SSPE
- Postanoksik ansefalopati


10 uV
0.3 s
30 Hz
Trace
OFF
Sens
TC
HF
Pat
Ref
26.10.2010
09:07:38
Elapsed
00:09:51
Epoch
60 /181
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
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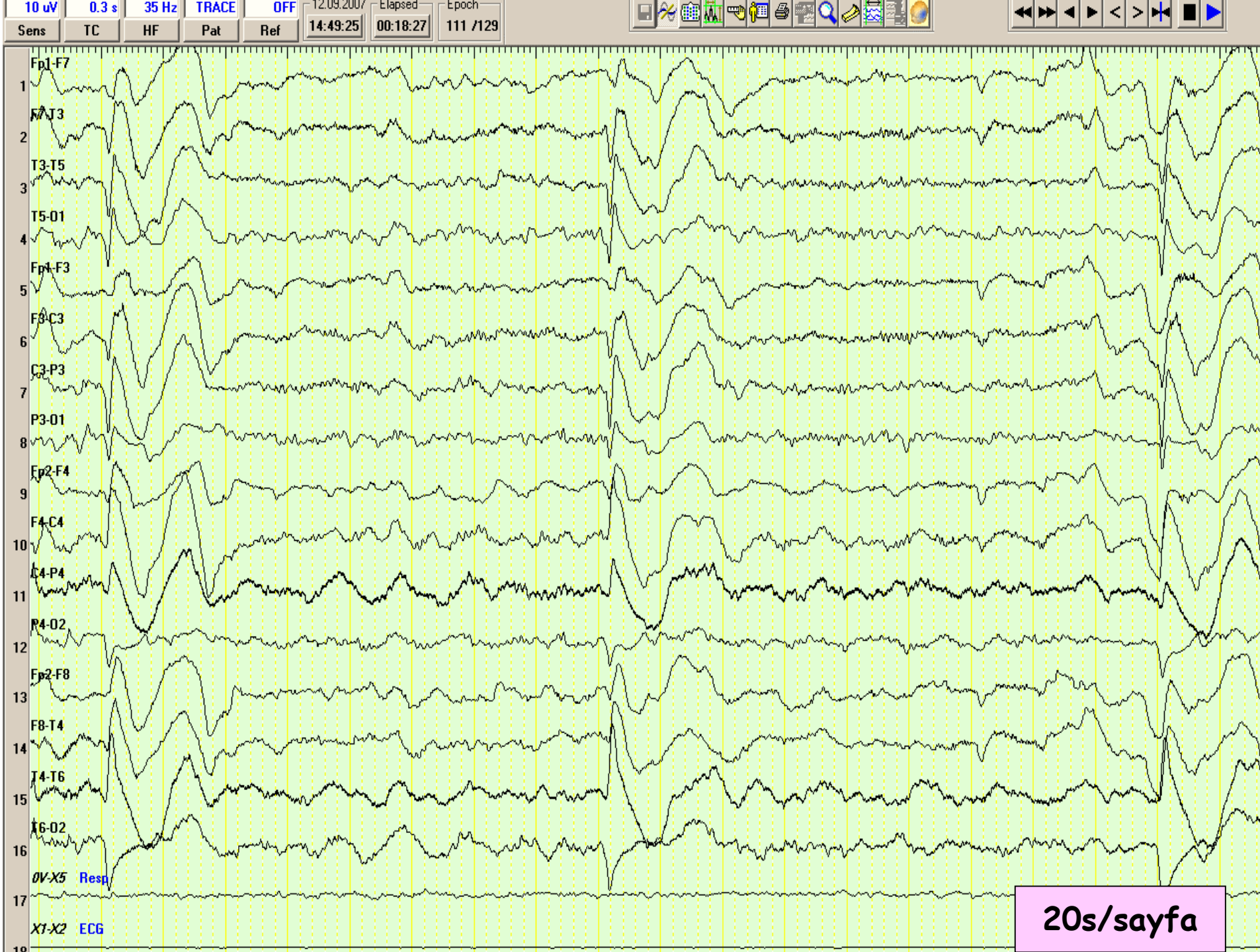
8
9
10
11
12
13
14
15
16
M
3cm/s

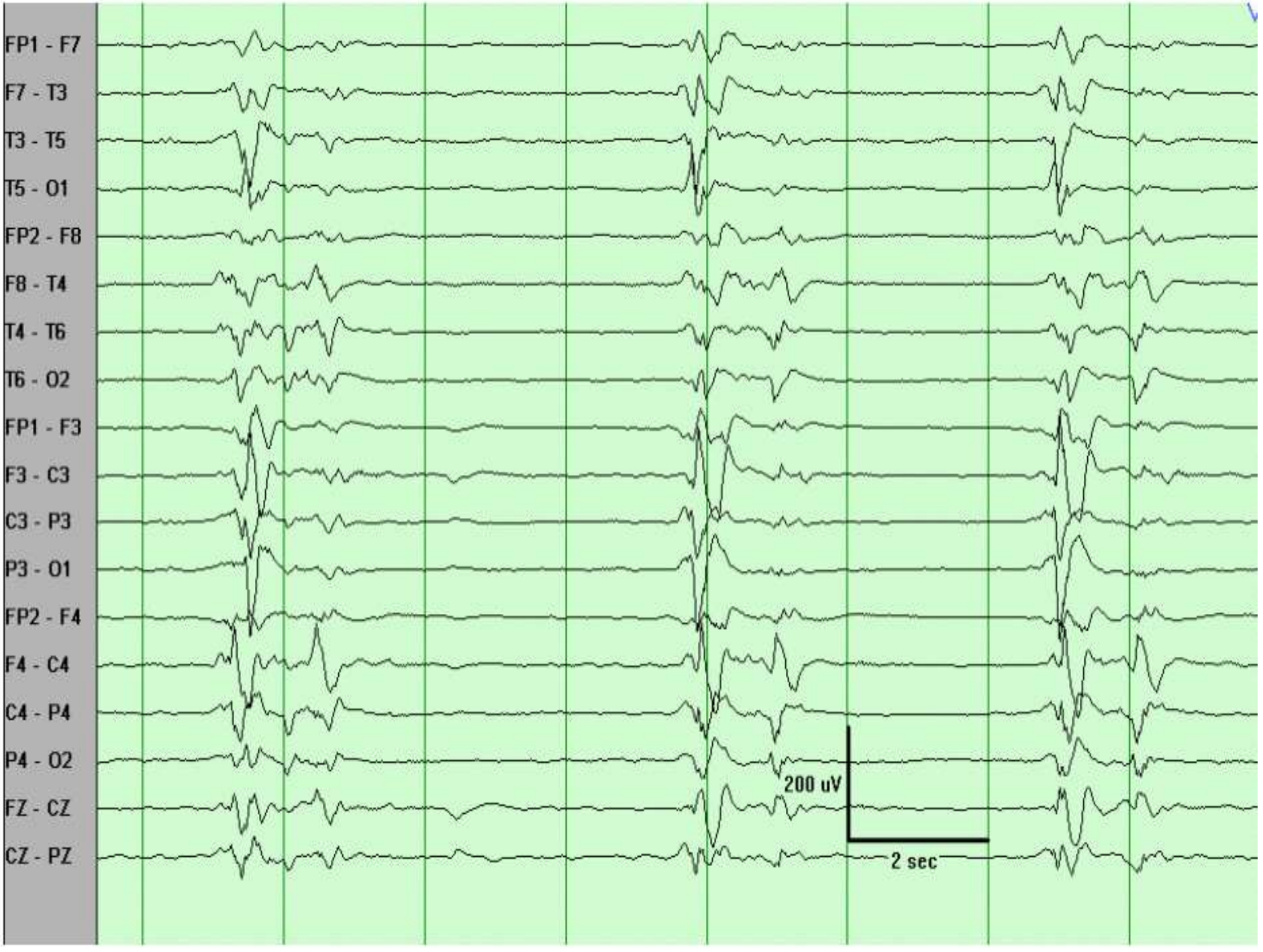

10 uV
0.3 s
35 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
12.09.2007
14:49:25
Elapsed
00:18:27
Epoch
111 /129
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
0V-X5 Resp
X1-X2 ECG
20s/sayfa

SUPRESYON BURST PATERNİ

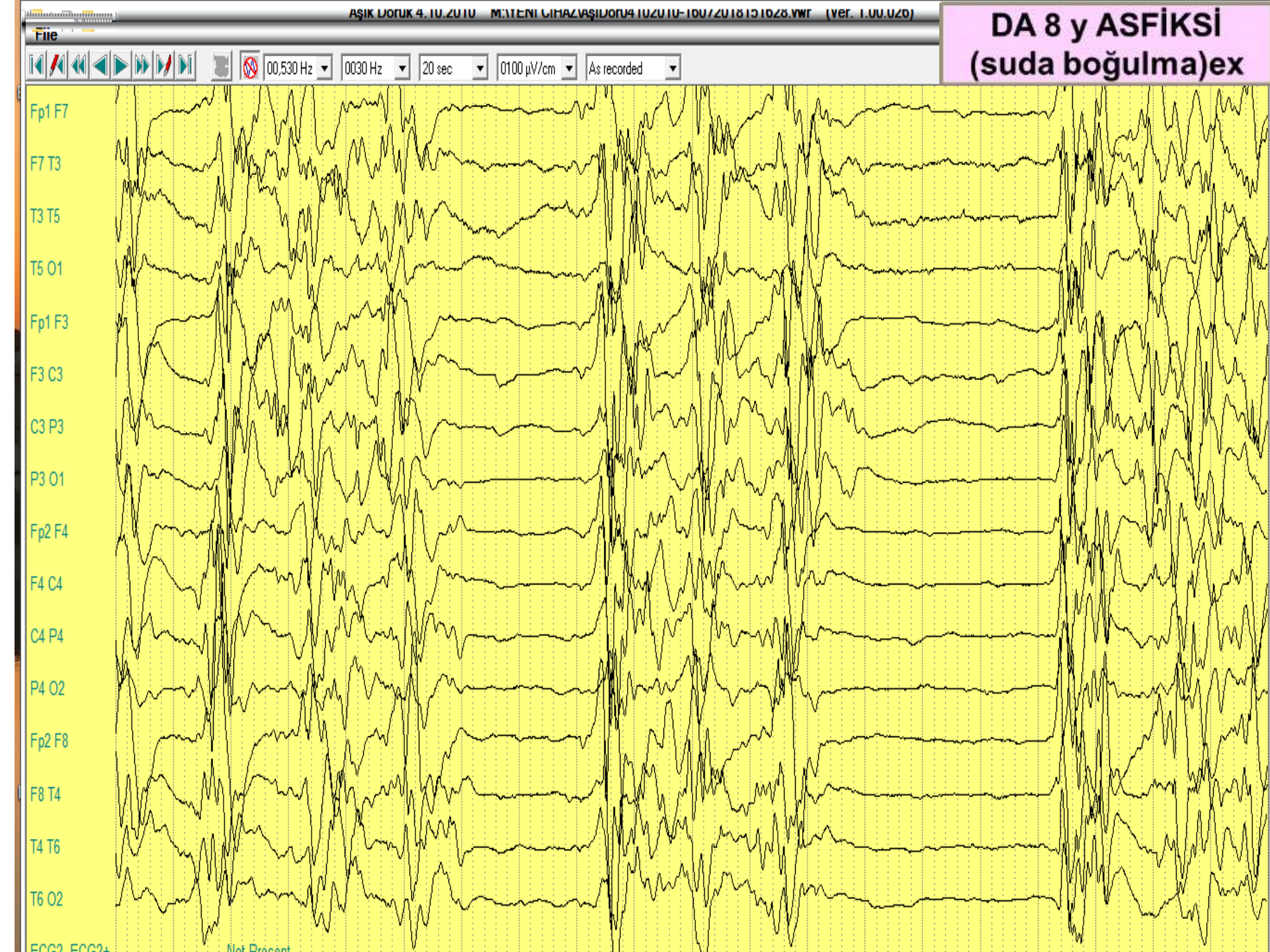
- Diken/keskin/yavaş d oluşan yüksek amplü, karışık frekanslı BURST aktivitesi
- Burstler arasında isoelektrik aktivite (< 10 µv)
- *Burst süresi > 0.5 s ve en az 4 fazlı aktivite olmalı*
- İnterval: 2s- birkaç dk
- Supresyon Kaydın %50-99 olmalı
- Uyaranlara reaktivite yok
- Supresyonda uzama SBP ⟶ Supresyon paterni

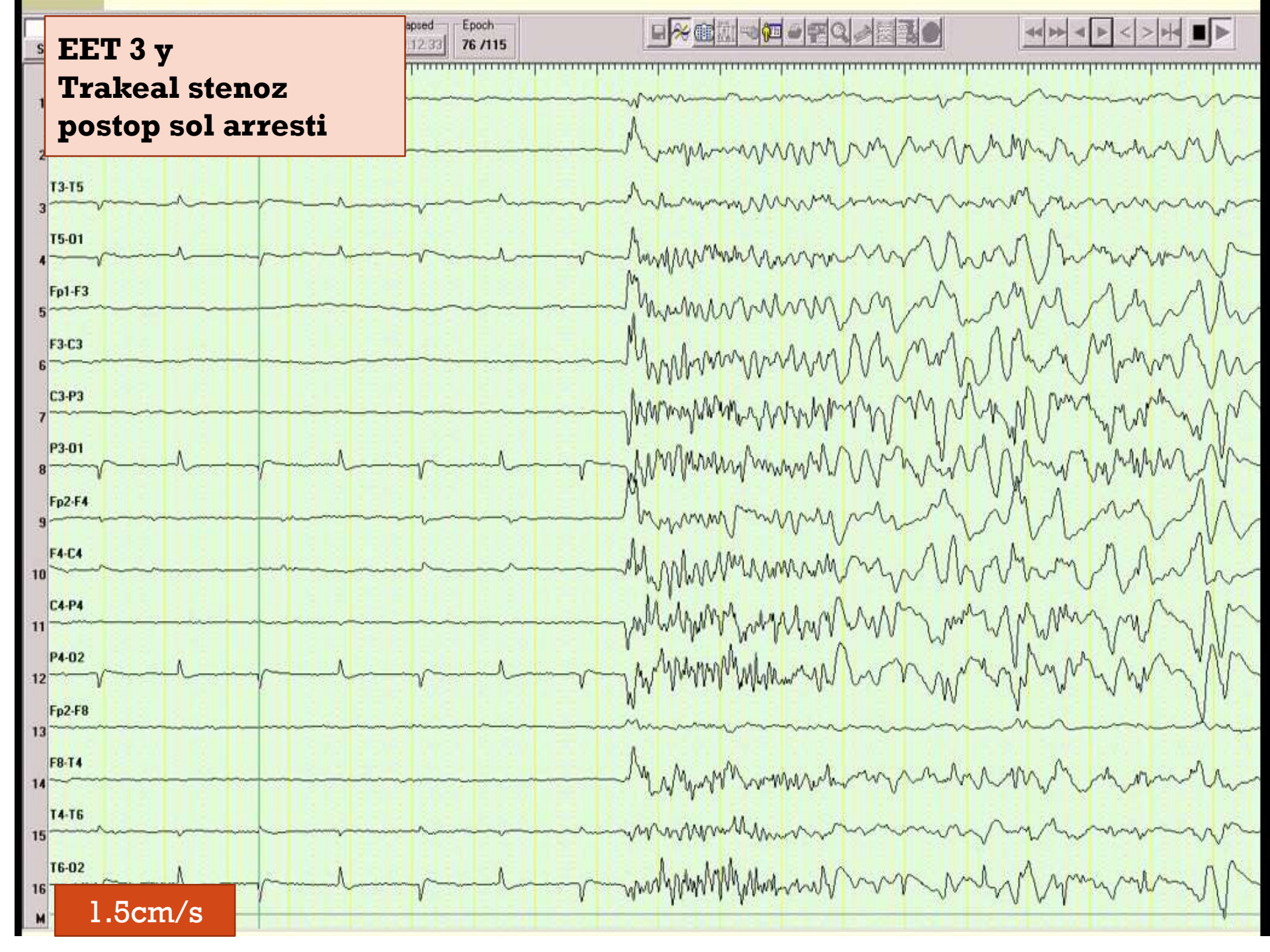
SUPRESYON BURST PATERNİ

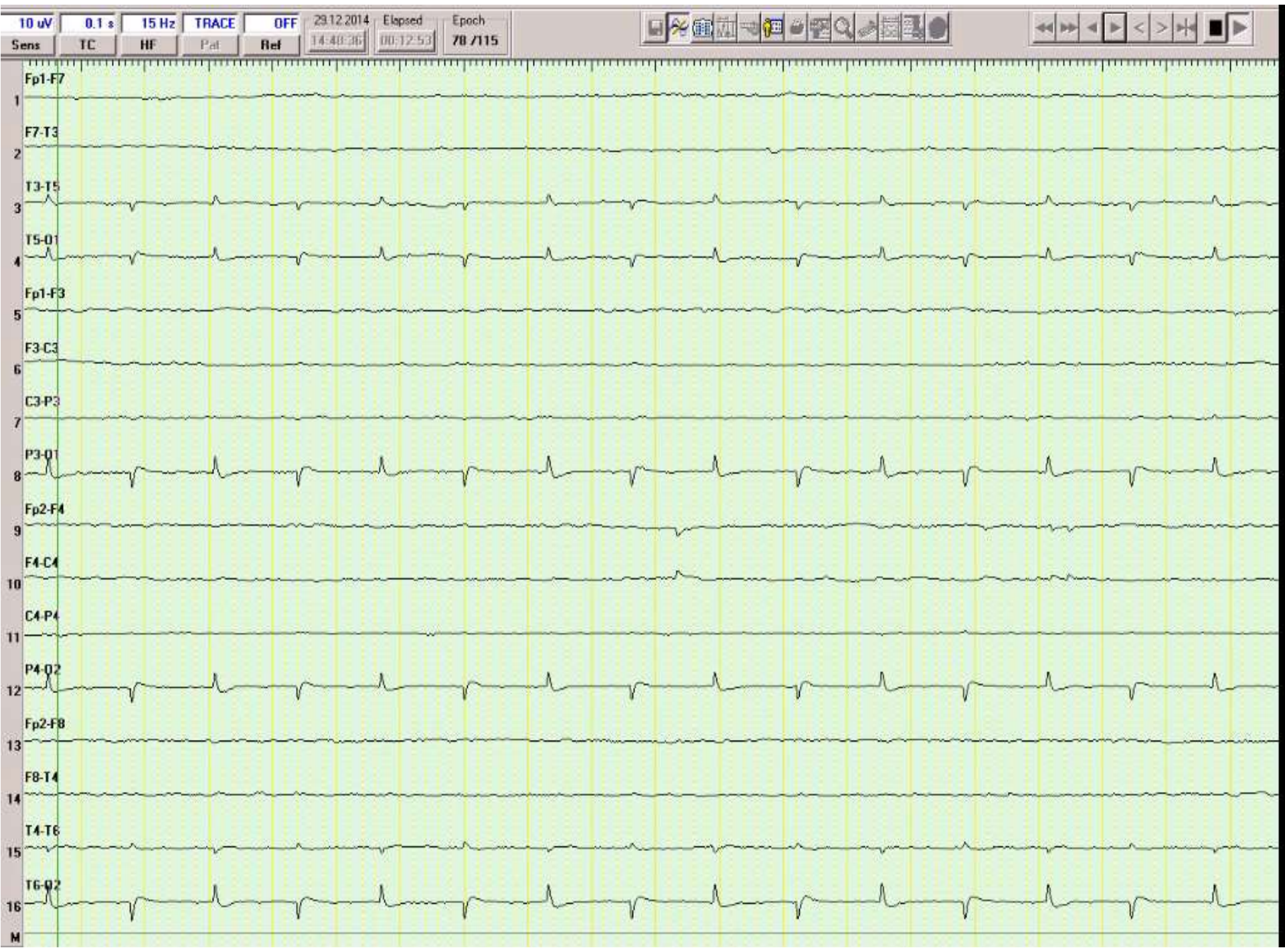
- Koma (geri dön+/-) !!!!
- Derin anestezi (barbitürat) / SE
- Hipotermi
- Ağır yaygın ensefelopati
- (anoksi, ilaç entoksikasyonu CPZ, penisilin)
- Erken epileptik ensefalopati (EIEE, EME)


FP1 - F7
F7 - T3
T3 - T5
T5 - O1
FP2 - F8
F8 - T4
T4 - T6
T6 - O2
FP1 - F3
F3 - C3
C3 - P3
P3 - O1
FP2 - F4
F4 - C4
C4 - P4
P4 - O2
FZ - CZ
CZ - PZ
200 uV
2 sec


DA 8 y ASFİKSİ
(suda boğulma)ex
File
00,530 Hz
0030 Hz
10 sec
0100 µV/cm
As recorded
Fp1 F7
F7 T3
T3 T5
T5 O1
Fp1 F3
F3 C3
C3 P3
P3 O1
Fp2 F4
F4 C4
C4 P4
P4 O2
Fp2 F8
F8 T4
T4 T6
T6 O2
ECG2- ECG2+
Not Present


Aşık Doruk 4.10.2010 M:\TENICIHAZ\aşıDoruk4102010-1607201815162828.vwr (Ver. 1.00.026)
File
00,530 Hz
0030 Hz
20 sec
0100 µV/cm
As recorded
DA 8 y ASFİKSİ
(suda boğulma)ex
Fp1 F7
F7 T3
T3 T5
T5 O1
Fp1 F3
F3 C3
C3 P3
P3 O1
Fp2 F4
F4 C4
C4 P4
P4 O2
Fp2 F8
F8 T4
T4 T6
T6 O2
Not Present


EET 3 y
Trakeal stenoz
postop sol arresti
Epoch
76 /115
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
1.5cm/s


10 uV
0.1 s
15 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
29.12.2014
14:40:36
Elapsed
00:12:53
Epoch
78 /115
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
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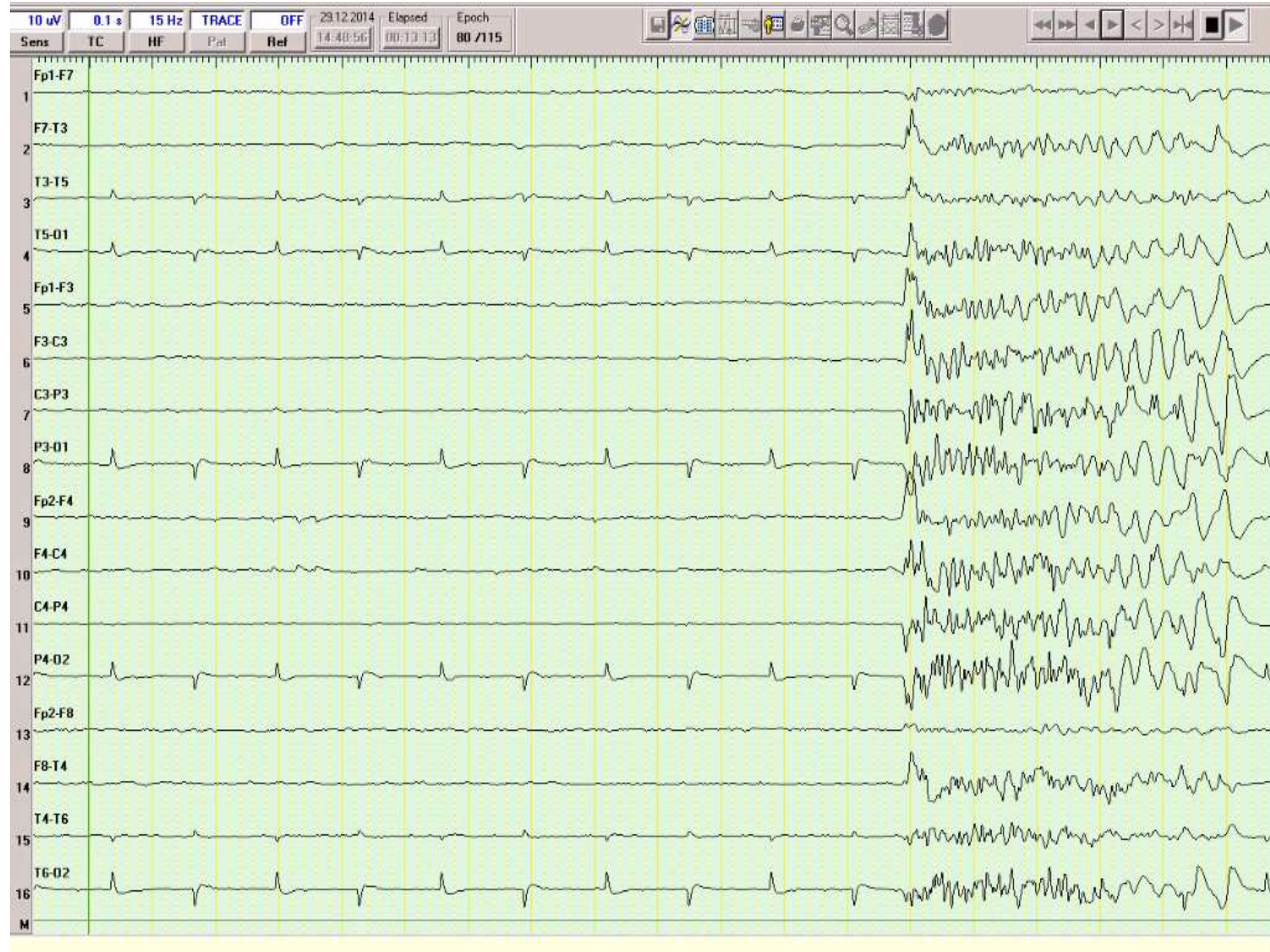
16
M


10 uV
0.1 s
15 Hz
TRACE
OFF
Sens
TC
HF
Pat
Ref
29.12.2014
14:48:56
Elapsed
00:13:13
Epoch
80 /115
Fp1-F7
F7-T3
T3-T5
T5-O1
Fp1-F3
F3-C3
C3-P3
P3-O1
Fp2-F4
F4-C4
C4-P4
P4-O2
Fp2-F8
F8-T4
T4-T6
T6-O2
1
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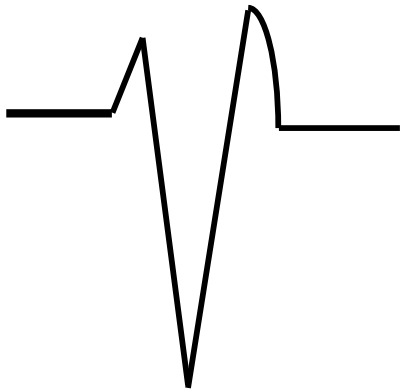
11
12
13
14
15
16
M

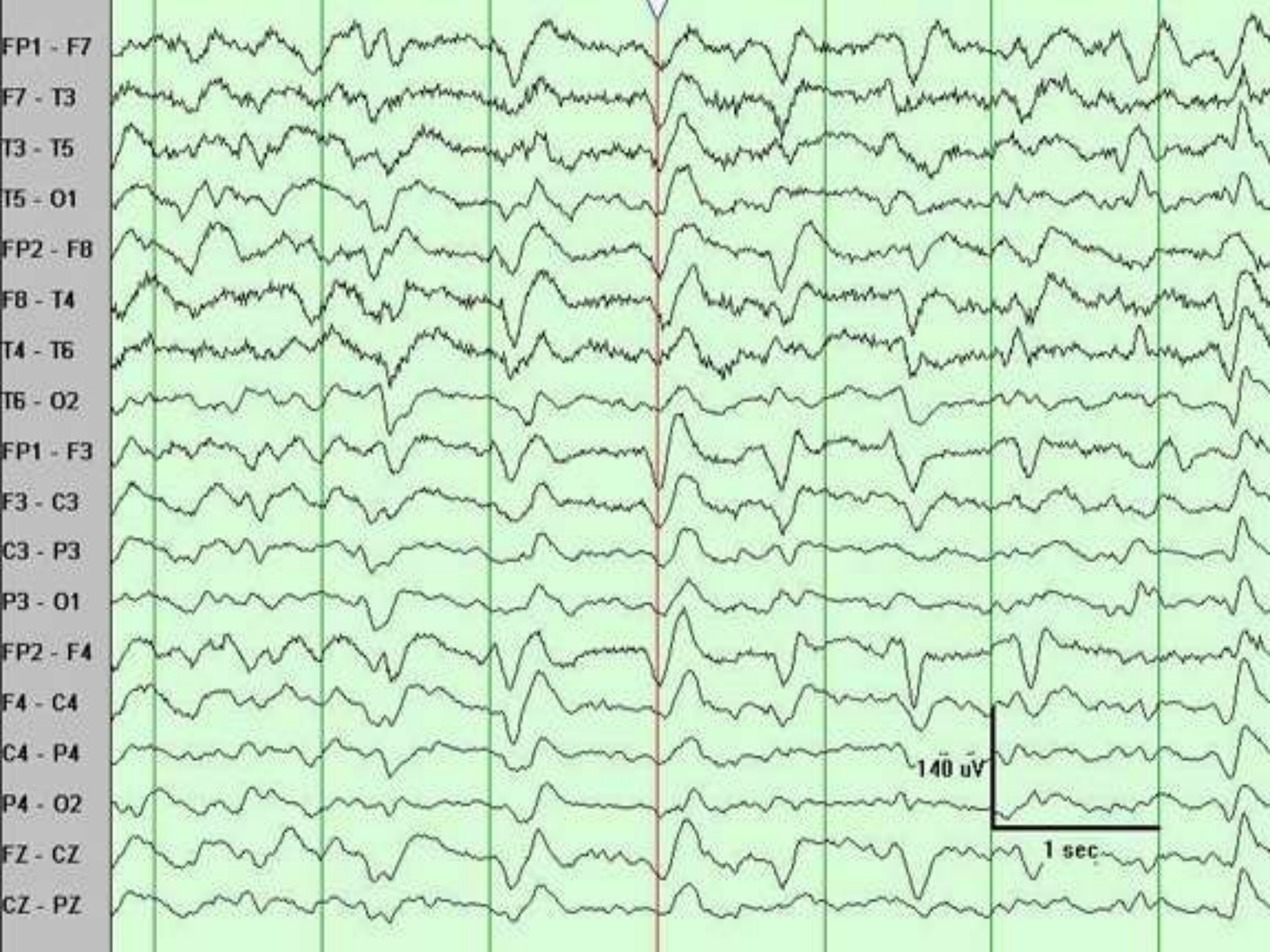
TRİFAZİK DALGALAR
TRİFAZİK MORFOLOJİLİ JPD

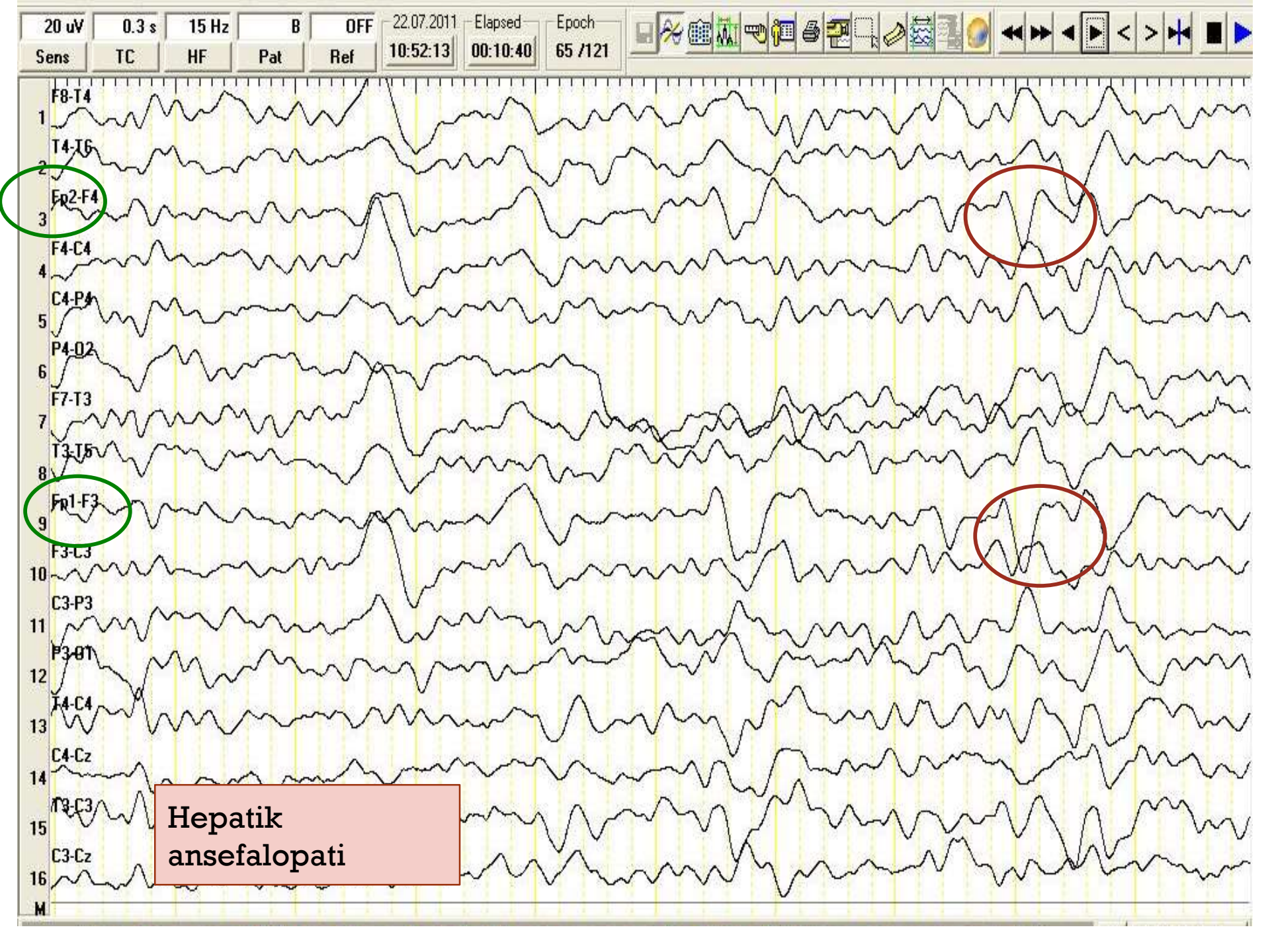
- Yüksek amplü trifazik d (neg/ poz/neg)
- Bilateral senkron
- Süre:0.2-0.5 s
- Maksimum amp: frontal/oksipital



- İnterval: 0.5-2 s
- Temel aktivite: yaygın yavaş d
- Klinik nb: yok (nonepileptiform aktivite)
- ENSEFALOPATİ Metabolik (Hepatik/üremik)
- Toksik
- Postanoksik
- < 20 y nadir

JPD İÇİNDE KABUL EDİLİYOR


FP1 - F7
F7 - T3
T3 - T5
T5 - O1
FP2 - F8
F8 - T4
T4 - T6
T6 - O2
FP1 - F3
F3 - C3
C3 - P3
P3 - O1
FP2 - F4
F4 - C4
C4 - P4
P4 - O2
FZ - CZ
CZ - PZ
140 uV
1 sec


20 uV
0.3 s
15 Hz
B
OFF
Sens
TC
HF
Pat
Ref
22.07.2011
10:52:13
Elapsed
00:10:40
Epoch
65 /121
F8-T4
T4-T6
Fp2-F4
F4-C4
C4-P4
P4-O2
F7-T3
T3-T5
Fp1-F3
F3-C3
C3-P3
P3-O1
T4-C4
C4-Cz
T3-C3
C3-Cz
Hepatik ansefalopati


Review CELINE MIRAC YILMAZ 22.07.2011 Volume No.:R0000005
File Display Jump Tool Control (Q) Option(X) Help (?)
20 uV 0.3 s 15 Hz B OFF
Sens TC HF Pat Ref
22.07.2011 10:52:03
Elapsed 00:10:30
Epoch 64 /121
F8-T4
T4-T6
Fp2-F4
F4-C4
C4-P4
P4-O2
F7-T3
T3-T5
Fp1-F3
F3-C3
C3-P3
P3-O1
T4-C4
C4-Cz
T3-C3
C3-Cz

SUPRESYON PATERNİ (İZOELEKTRİK EEG)

Elektroserebral sessizlik /inaktivite

2 µv üzerinde EEG aktivitesi yok

- **Supresyon kaydın > %99 olmalı**
- **Elektrotlar arası uzaklık> 10 cm**
- **Elektrot empedansı 100Ω- 10000 Ω olmalı**
- **Hipotermi, barbitürat entoksikasyonu dışlanmalı**
- **Kayıt en az 30 dak. sürmeli**
- **Sensitivite 2 µv/mm olmalıdır**
- **EKG ve EMG ve solunum ilave edilmeli**

FP1-F7

F7-T3

T3-T5

T5-O1

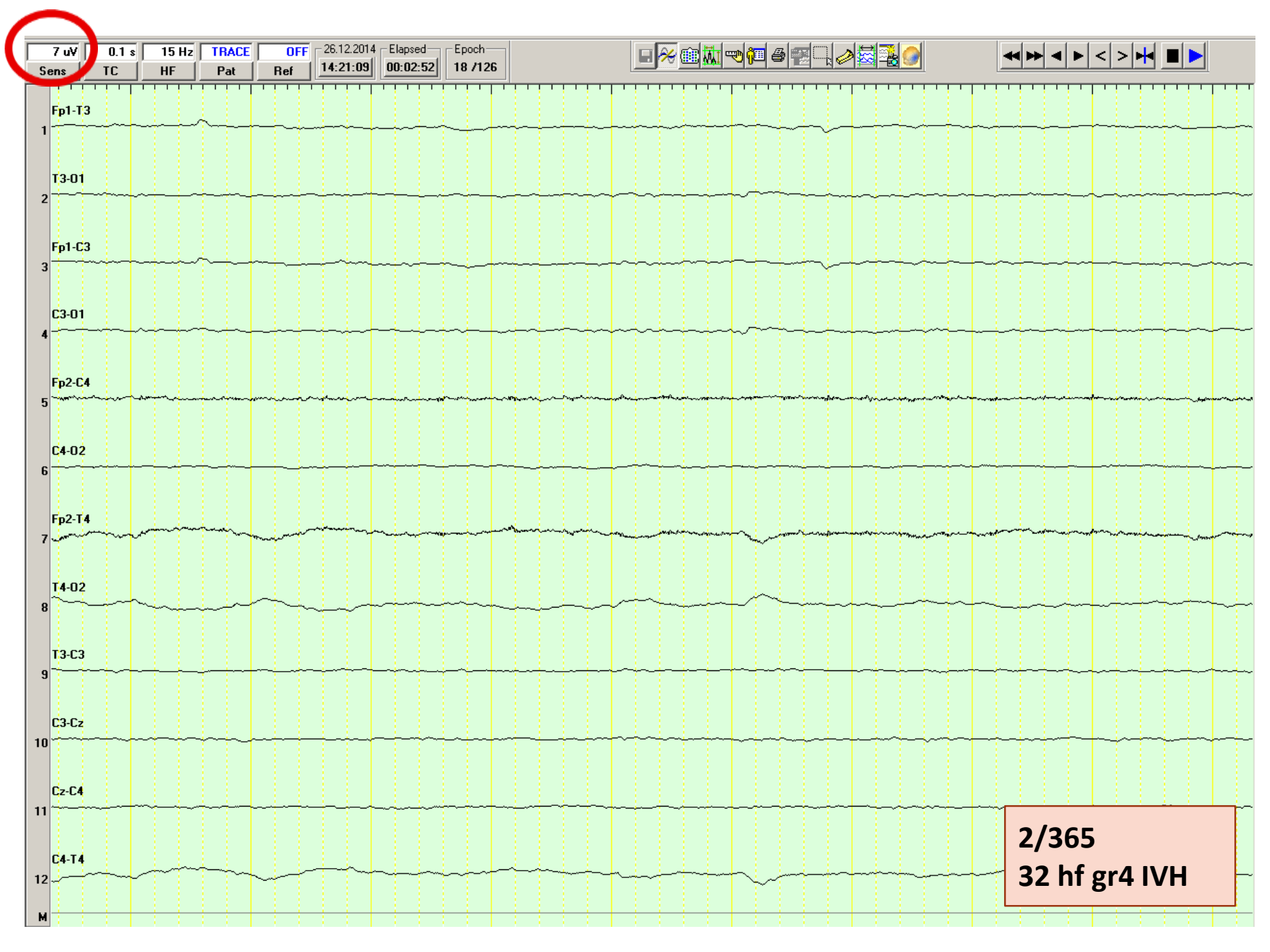
FP2-F8

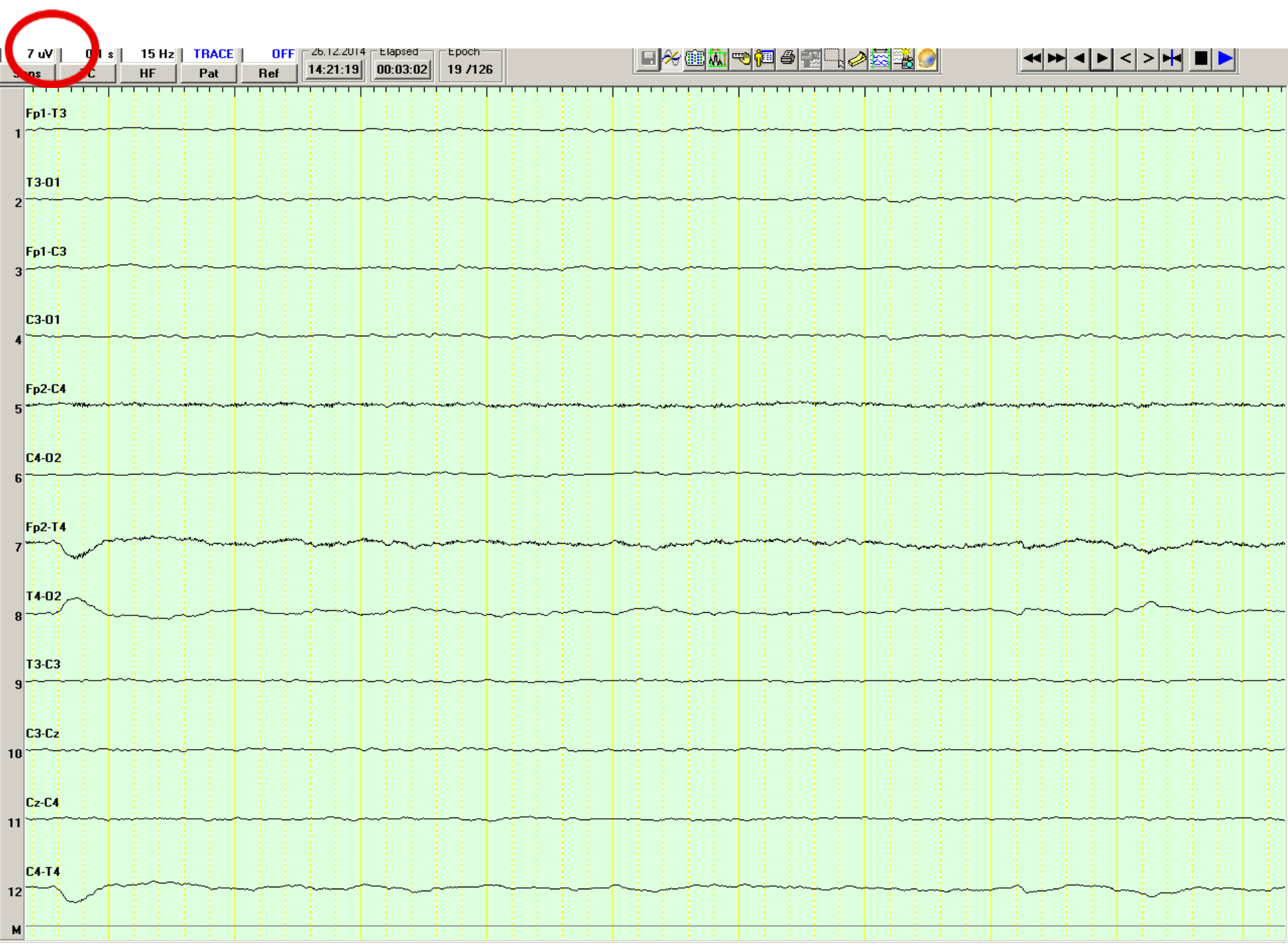
F8-T4

T4-T6

T6-O2

Ashwal S Critical Care Nurse
2006; 26:117-128


7 uV
Sens
0.1 s
TC
15 Hz
HF
TRACE
Pat
OFF
Ref
26.12.2014
14:21:09
Elapsed
00:02:52
Epoch
18 /126
Fp1-T3
T3-O1
Fp1-C3
C3-O1
Fp2-C4
C4-O2
Fp2-T4
T4-O2
T3-C3
C3-Cz
Cz-C4
C4-T4
2/365
32 hf gr4 IVH


7 uV
15 Hz
TRACE
OFF
HF
Pat
Ref
14:21:19
00:03:02
19 /126
Fp1-T3
T3-O1
Fp1-C3
C3-O1
Fp2-C4
C4-O2
Fp2-T4
T4-O2
T3-C3
C3-Cz
Cz-C4
C4-T4
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10
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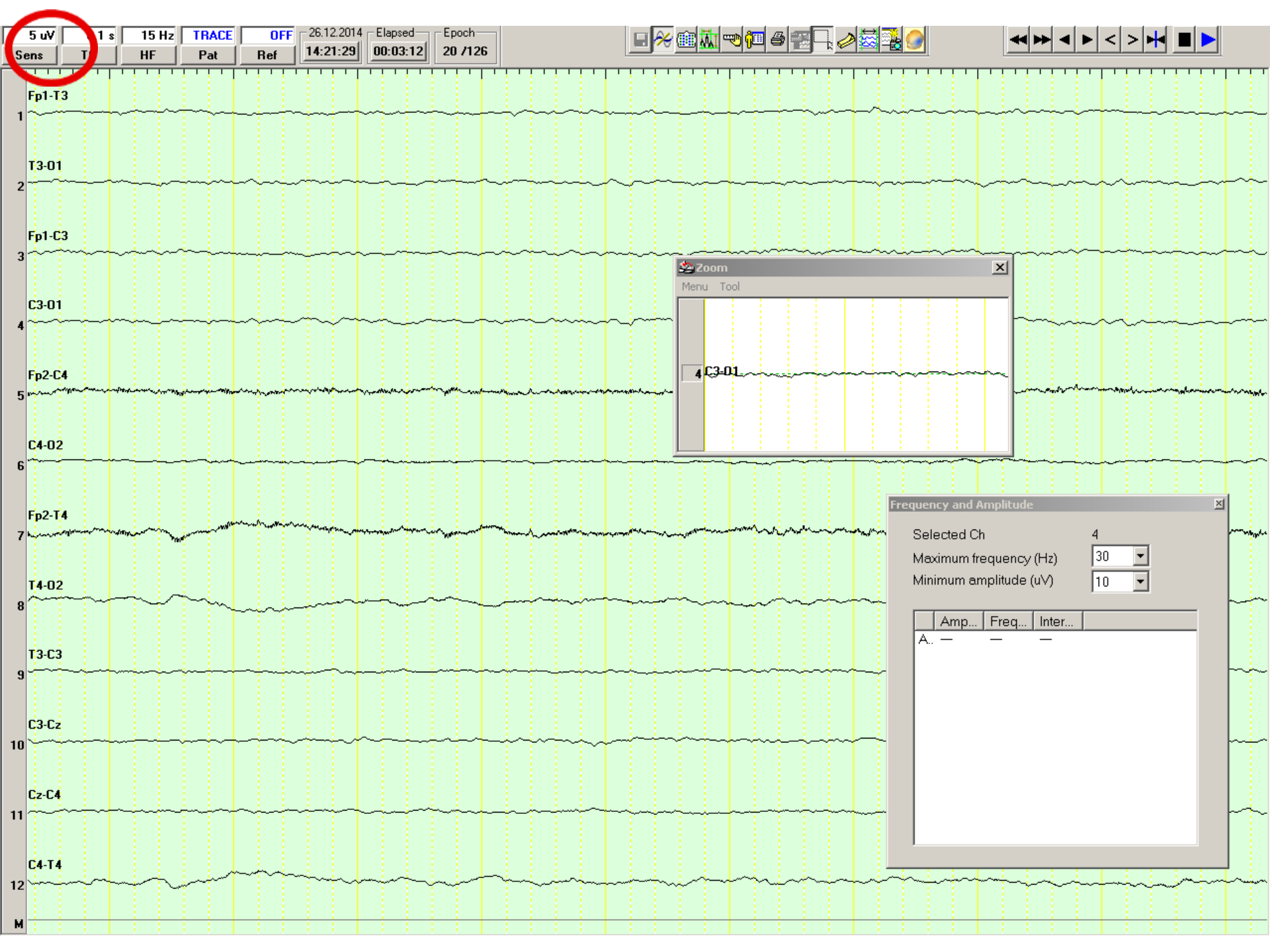
12
M


5 uV
Sens
1 s
T
15 Hz
HF
TRACE
Pat
OFF
Ref
26.12.2014
14:21:29
Elapsed
00:03:12
Epoch
20 /126
Fp1-T3
1
T3-O1
2
Fp1-C3
3
C3-O1
4
Fp2-C4
5
C4-O2
6
Fp2-T4
7
T4-O2
8
T3-C3
9
C3-Cz
10
Cz-C4
11
C4-T4
12
M
Zoom
Menu
Tool
4
C3-O1
Frequency and Amplitude
Selected Ch
4
Maximum frequency (Hz)
30
Minimum amplitude (uV)
10
Amp...
Freq...
Inter...
A..