

First Congress International Society of Diamagnetic Therapy

OUR EXPERIENCE USING THE CTU MEGA-18 DIAMAGNETIC PUMP IN BONE MARROW EDEMA

Skordis D. PT, MSc ¹, Macheras S. MD ²
Orthopedic Surg., Papaharalampous X. MD³
Skordi M. MD ¹ Physiatrist . Natsika M. MD,
MSc Radiologist ⁴

1. Clinic of Sports Injuries Rehabilitation
2. Central Clinic of Athens
3. Associate Professor of Radiology
Department in School of Medicine University
of Athens
4. KOSMOIATRIKI Medical Company of
Private Diagnostic Laboratories



13th – 14th September 2024
Magna Graecia University - Catanzaro



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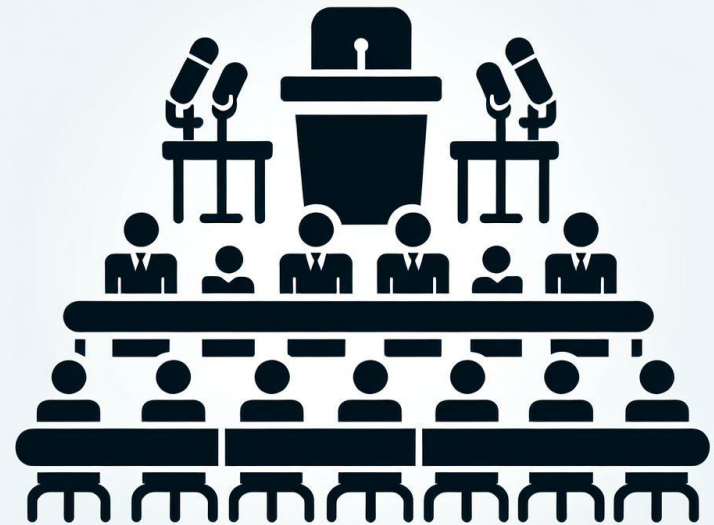
Our Team



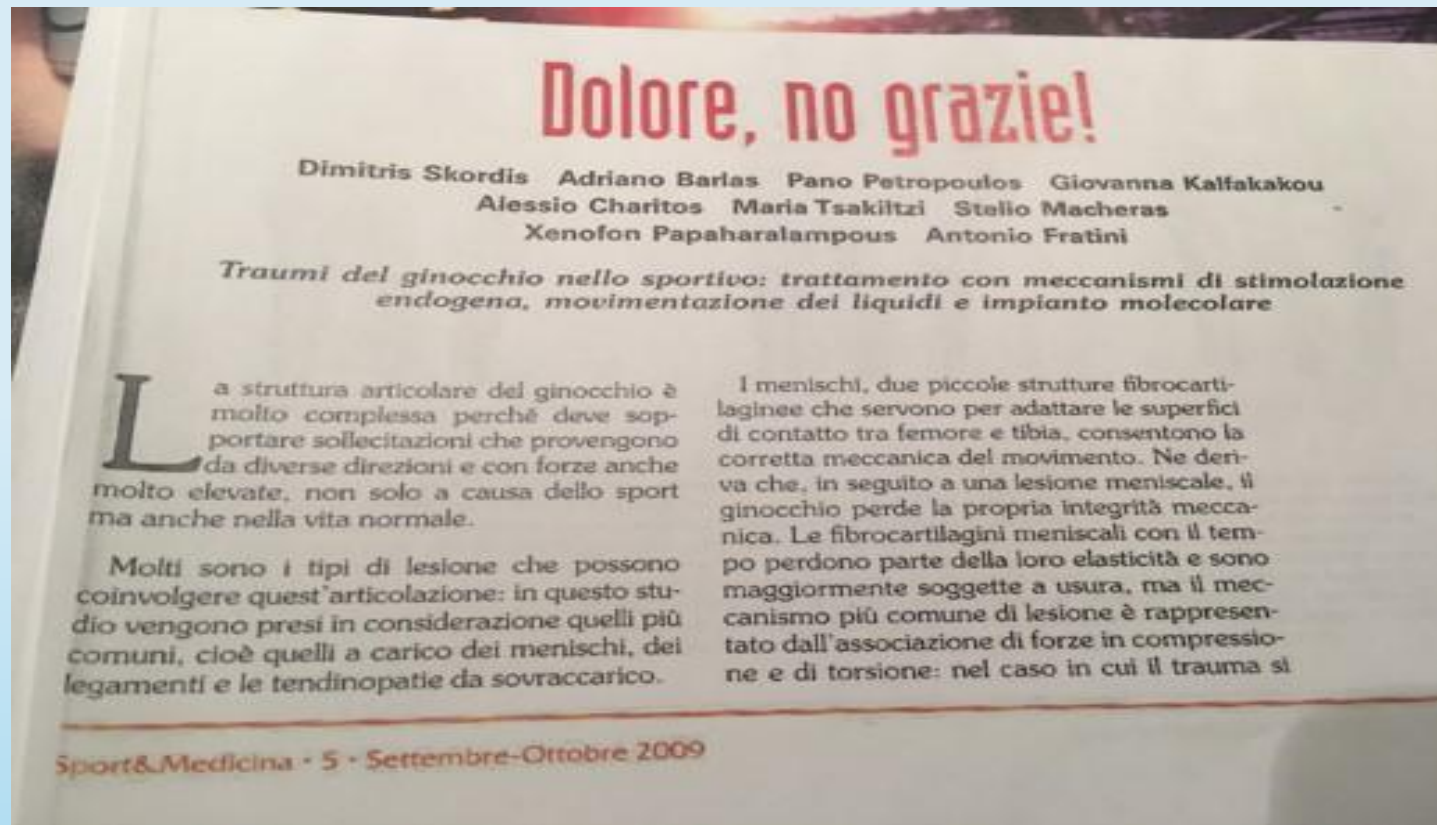
and the dream...came true

From Sassari Sardinia 2008

To Catanzaro (Univercity
Magna Graecia)



First Publication



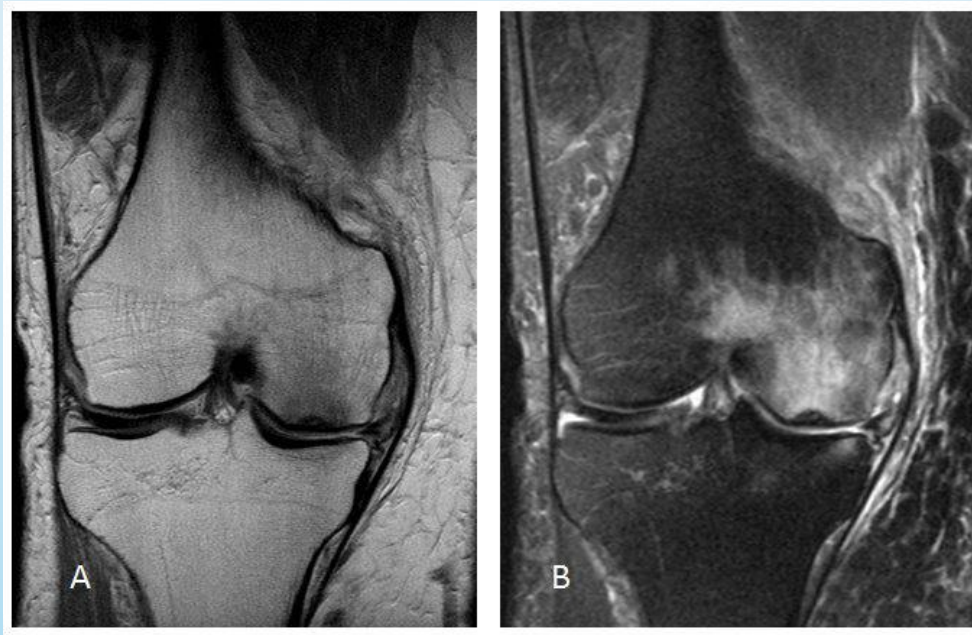
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- the term bone edema refers to an injury of the **bone marrow** and appears as an area of poor signal between the marrow on T1 images and high signal intensity on T2 images as a result of fluid content in the injured marrow



- The invention and the increasing use of Mri in research and study of injuries, especially acute, brought to light a new traumatic situation : **bone marrow edema**

DIAGNOSIS

- Conventional radiological techniques doesn't offer accurate image of bone marrow.
- Bone edema diagnosis is based on MRI findings
- A typical bone edema appears as an area with lack of sign between the marrow in T1 weighted images and with high signal in T2 weighted images **because on fluid sensitive in the injured marrow**



PATHOLOGY

- The most interesting information's concerning bone edema came from the histological analysis of Johnson et al.
- The pathological-anatomical examination of bone edemas in 10 patients who underwent reconstruction of ACL showed varying degree of alteration in the articular cartilage as well as in the hypochondrial tissue.
- Chondrocytes of the surface zone of the articular cartilage had different stage of degeneration including necrosis. There were also loss of proteoglycan of intercellular space and varying degree necrosis of the osteo-cells in the underlying subchondral bone.



Bone edema represents an acute and strong injury in the underlying articular cartilage as well as in the subchondral bone and it can be one of the basic **factor for prognosis of future cartilage degeneration** even if there is an absence of visual injury of the articular cartilage.

A research of Simones-Boks et al concerning a follow up of post-traumatic bone edemas founded 157 bone edemas with average healing time 42 weeks.

- A research which came from Norway and specific from Nakamae A. et al and concerns the review of the scientific literature, founded that :

Bone edema remains for a long time after injury and cause necrosis of chondrocytes and loss of proteoglycan

A recent systematic study of Bocks et al in literature summarizes 266 articles but only 13 are recognized as qualitative studies. In those studies, the reported rehabilitation time is 11-16 months follow up with MRI examination and 88% percentage while in other one after 6-12 months .

- Today, though, after extensive research and systematic analysis, it seems that BONE MARROW EDEMA associates with :
 - changes In the subchondral bone
 - Contributes to early degeneration of articular cartilage
 - Later development of osteoarthritis

ICRS - TEL AVIV Meeting February 2017



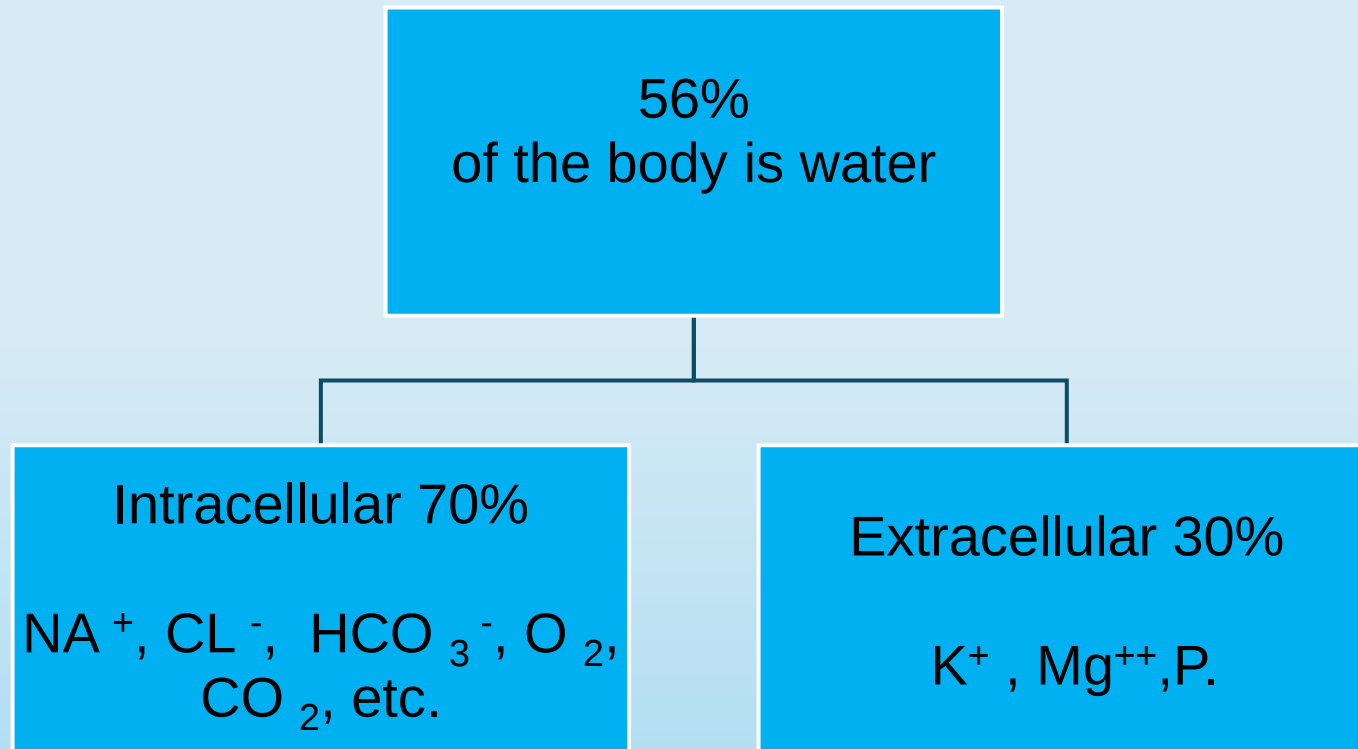
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THE DIRECT ENVIRONMENT OF CELLS EXTRACELLULAR FLUID



SYSTEM OF EXTRACELLULAR FLUID DISTRIBUTION

- movement in the circulatory system(1-6 times/min.).
- movement through the trichoid vessels

HOMEOSTASIS

- maintenance of stability natural and chemical constitution fluid of cells
- Bodies and webs contribute in homeostasis
- circulation of blood

THE EFFECT OF CTU MEGA-18 AT THE HUMAN TISSUE

- creates most intense endogenous biostimulation
- promotes the drastic substance of medicines
- activates the diamagnetic attribute of fluids

AIMS OF TREATMENT WITH THE CTU MEGA -16

- Analgetic effect
- improvement of circulation
- endogenous biostimulation

Our experience from 2018-2023

1725 patients with Bone Marrow Edema

CTU Mega-18

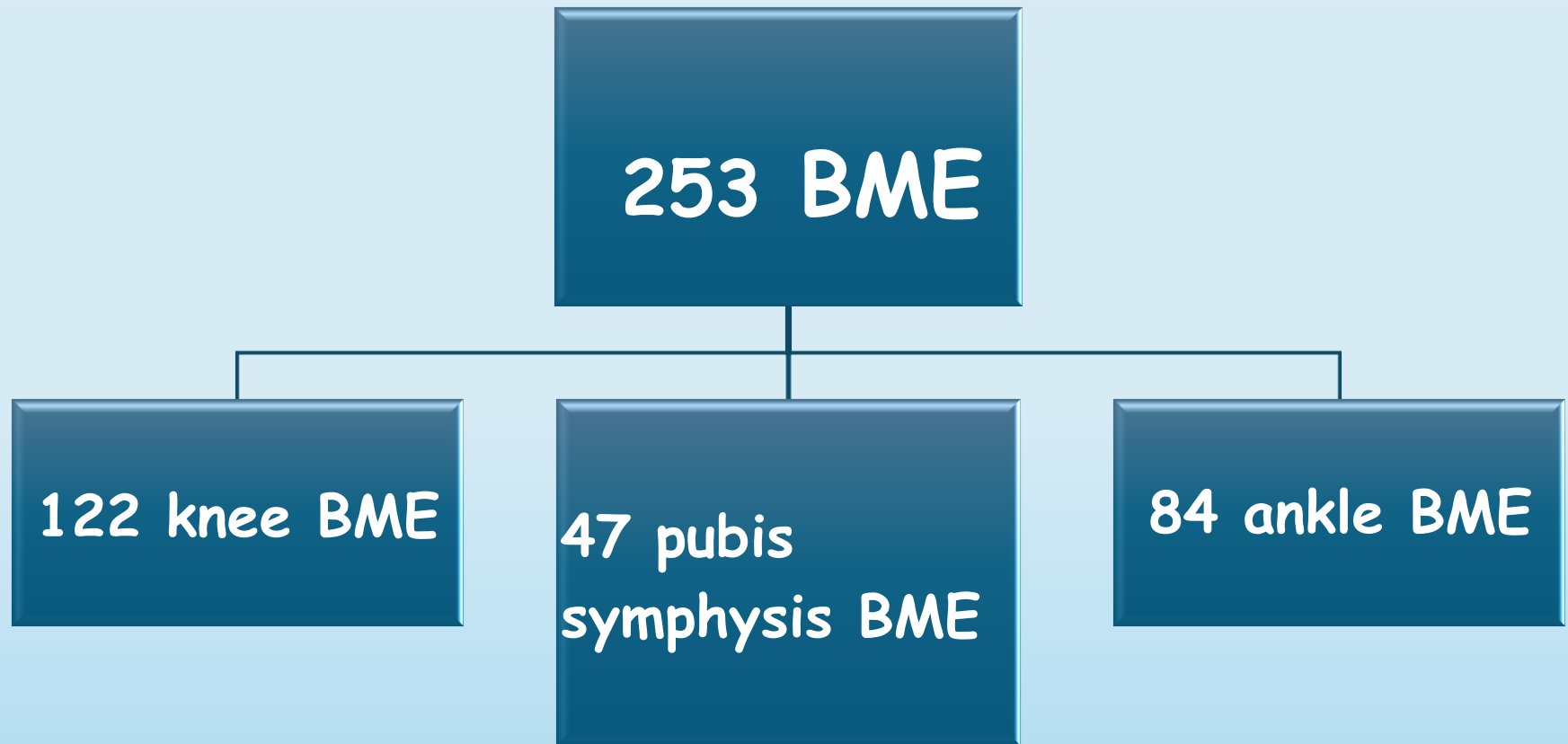
kinesiotherapy (mobilization-strengthening exercise)

Cold therapy

1725 PATIENTS

- 704 Knee joint
- 552 Ankle joint
- 168 Pubis symphysis
- 102 Shoulder joint
- 73 Lumbar Spine - Pectoral
- 52 Hip joint
- 42 Lower upper extremity
- 21 Elbow joint
- 11 Cervical spine

Professionals Athletes BME



Methods and Materials

- mean age 28,5 years
- CTU MEGA 18
- 2 Hz 50 Joules
- mean treatment sessions 26

Preliminary Results

- Pain Scale
- 2nd MRI comparison

Pain Scale

96,5% No pain

3,5% No
significant
difference

2nd MRI comparison

- 78% >85%- complete improvement
- 18% 50% - 60%
- 3,5% <20% - No improvement

HISTOLOGICAL EXAMINATION

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Εθνικόν και Καποδιστριακόν
Πανεπιστήμιον Αθηνών
ΙΔΡΥΘΕΝ ΤΟ 1837

ΙΑΤΡΙΚΗ ΣΧΟΛΗ
ΕΡΓΑΣΤΗΡΙΟ ΙΑΤΡΟΔΙΚΑΣΤΙΚΗΣ
ΚΑΙ ΤΟΞΙΚΟΛΟΓΙΑΣ
Διευθυντής: Καθηγήτρια Χ. Σπηλιοπούλου
Μ. Ασίας 75, Γουδή, Αθήνα 11527
Τηλ: 210-7462406, Fax: 210-7462390
Ηλεκτρονική διεύθυνση: ForMedTox@med.uoa.gr

Αθήνα 17/09/2019

ΙΣΤΟΛΟΓΙΚΗ ΕΞΕΤΑΣΗ
τιμημάτων αρθρικών περιοχών και χόνδρων

Παραλάβαμε προς αξιολόγηση και μελέτη βιολογικό υλικό εντός πλαστικών δοχείων (ουροσυλλέκτες) με τις ενδείξεις:

1. Ουροσυλλέκτης με την ένδειξη «ΜΠΑΛΙΟΥ ΑΛΕΞ. - ΑΡ μηρός» 12/04/2019
2. Ουροσυλλέκτης με την ένδειξη «ΜΠΑΛΙΟΥ ΑΛΕΞ. - ΑΡ κνήμη» 12/04/2019
3. Ουροσυλλέκτης με την ένδειξη «ΒΑΛΒΗΣ ΜΙΧΑΗΛ - ΔΕ γόνατο» 10/04/2019
4. Ουροσυλλέκτης με την ένδειξη «ΡΕΤΣΗ ΧΡΥΣΟΥΛΑ - μηρός» 12/04/2019
5. Ουροσυλλέκτης με την ένδειξη «ΡΕΤΣΗ ΧΡΥΣΟΥΛΑ - κνήμη» 12/04/2019
6. Ουροσυλλέκτης χωρίς ένδειξη που περιείχε 7 λευκόφαια ιστοτεμάχια σκληράς συστάσεως.
7. Ουροσυλλέκτης με την ένδειξη «ΧΡΙΣΤΙΝΑΚΗ Ελεάνα» 25/04/2019

ΜΑΚΡΟΣΚΟΠΙΚΗ ΠΕΡΙΓΡΑΦΗ:
Κατά την μακροσκοπική περιγραφή των βιολογικών υλικών αναγνωρίζονται τμήματα αρθρικής περιοχής και χόνδρου.

ΙΣΤΟΛΟΓΙΚΗ ΕΞΕΤΑΣΗ:
Μετά τη λήψη των ιστολογικών τομών και τη χρώση αυτών με τις ιστοχημικές χρώσεις Alcian Blue- PAS, Alcian Blue-PAS -Diastase και Toluidine Blue διαπιστώθηκε (κυρίως με βάση την χρώση Alcian Blue- PAS) αυξημένη παρουσία στα ιστοτεμάχια πρωτεογλυκανών κυρίως με την μορφή των όξινων βλεννοπολυσακχαριτών.

Ο διενεργήσας την εξέταση

Δ. Βλαχοδημητρόπουλος
Αναπλ. Καθηγητής
Εργ/ριο Ιατροδικαστικής και Τοξικολογίας
Ιατρική Σχολή Ε.Κ.Π.Α.

Οι παρασκευάστριες
Φανάκη Χρυσή
Τζελλίλι Ιωάννα

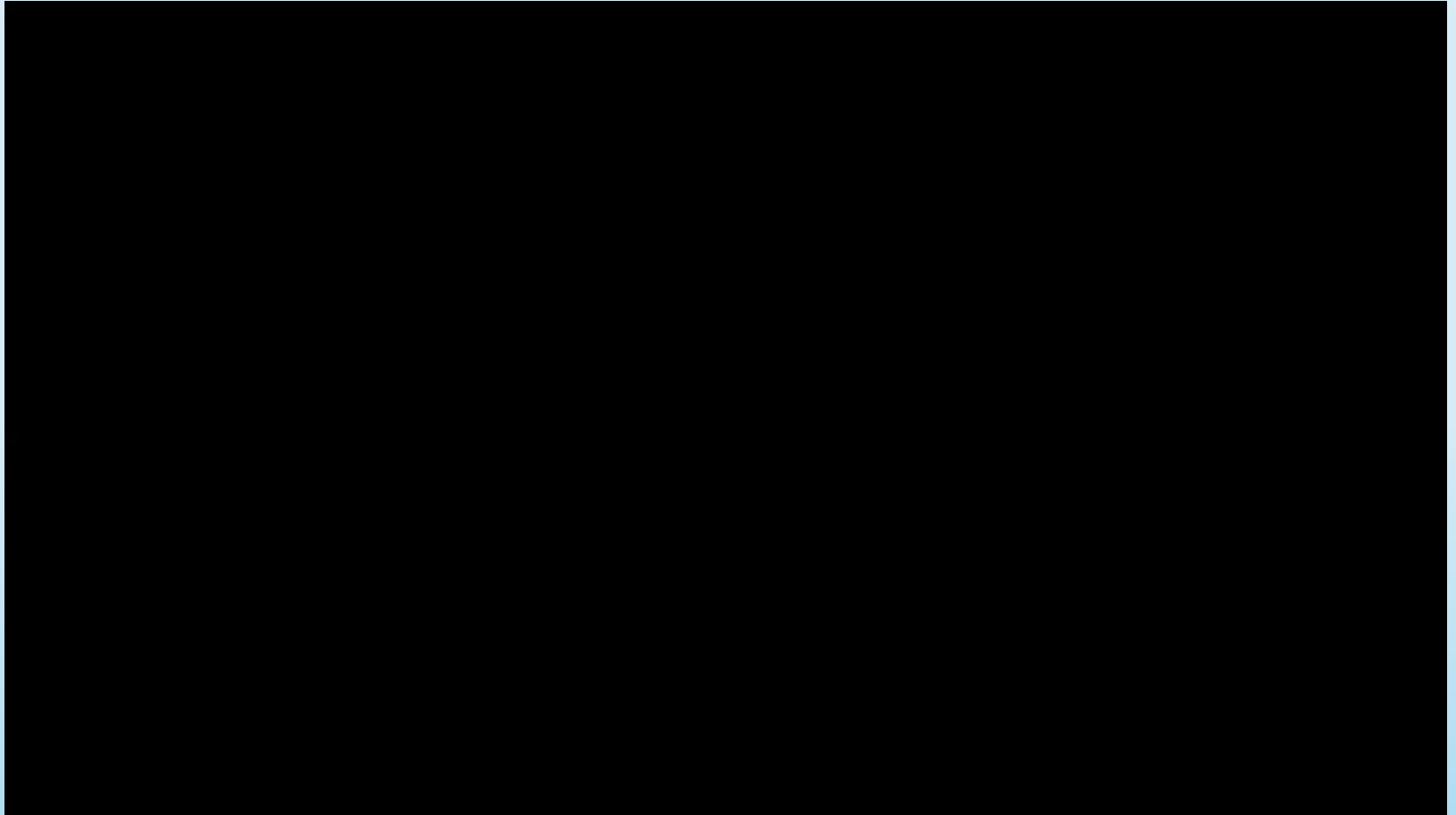


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And because...a picture is worth a 1000 words!!!



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The road is long!!!!but there is light at the end!!!



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Thank you for your attention!!

