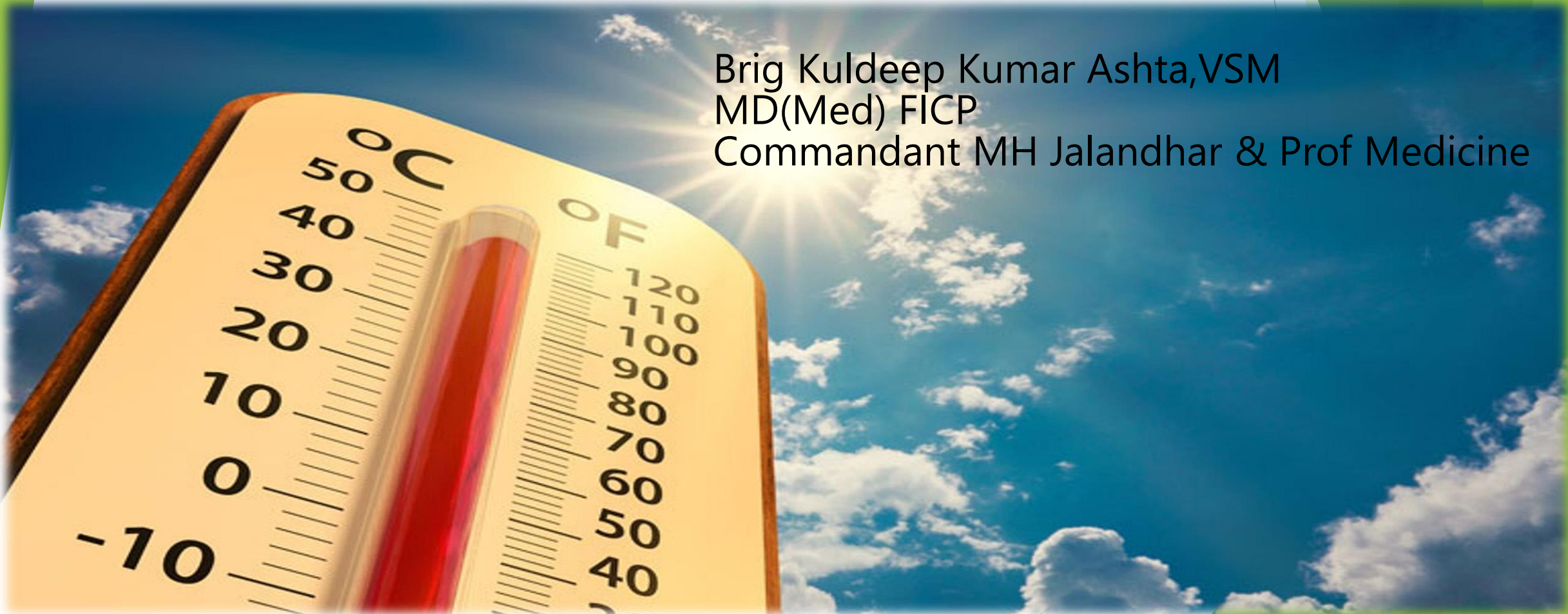


# HEAT RELATED DISEASES ARMED FORCES PERSPECTIVE

Brig Kuldeep Kumar Ashta, VSM  
MD(Med) FICP  
Commandant MH Jalandhar & Prof Medicine





### Soaring mercury and health risks

The heat is so intense that it could lead to health concerns for vulnerable people, experts say

**BEHIND THE HEATWAVE: AN 'ANTI-CYCLONE'**  
A so-called 'anti-cyclone' over north Arabian Sea, which is expected to last till early next week, is bringing hot, westerly winds into South Asia, weather scientists say. During an anti-cyclone, air pressure is high on the surface, causing the air above it to come down. This air warms up as it comes down. The outward hot winds caused by this are ranging as far as Odisha and West Bengal

**Will worsen in next few days**  
According to IMD, temperatures will increase by 2°C in most parts the next few days

**Relief from Monday?**  
IMD has said there will be relief from May 2, due to a western disturbance

**What should you do?**

- Avoid dehydration
- Avoid heat exposure
- Wear lightweight, loose, cotton clothes
- Cover the head

NEW DELHI THURSDAY JUNE 22, 2023

14 | OPINION

# To forestall heat deaths, bolster our health data

India was rocked by a cascade of severe weather events in the past few weeks. A late monsoon stalled in the south, a cyclone pummelled the north-eastern coasts and floods inundated the country was

loss is still high, the reduction in big success story for India. This is, unfortunately, not heat waves. An assessment by of earth sciences showed that rate due to heat waves incr

Thermoreg

14 heatstroke deaths this summer, 5-year high in Maharashtra



in a fix after claims its fire Imran Khan has in Pakistan

No heat stroke deaths were reported in 2020 and 2021."

### SCORCHING SPELL CONTINUES

| SUMMER | DEATHS * |
|--------|----------|
| 2016   | 19       |
| 2017   | 13       |
| 2018   | 2        |
| 2019   | 9        |
| 2020   | NIL      |
| 2021   | NIL      |



Citizens keep themselves covered against the heat they go out in the city during afternoon hours

and second hottest in India on Thursday > Day temperatures were 40+°C in at least 11 locations, among the 11, recorded heat wave has been next 2 to 3 days

WWW.FINANCIALEXPRESS.COM

HEATWAVES WILL BECOME MORE FREQUENT AND INTENSE DUE TO GLOBAL WARMING. WE MUST PREPARE TO DEAL WITH THIS LOOMING CRISIS

## Declare heatwave a natural disaster

THE REAL MAINSTREAM

CHANDRA BHUSHAN  
Deputy director general

FINANCIAL EXPRESS  
WEDNESDAY, JUNE 19, 2019

CLIMATE IN CRISIS

## Military must focus on short- and long-term challenges of climate change, report finds

A Rand Corp. study maps out the various ways climate change will impact the military's personnel, equipment, facilities, supply chain and ability to engage with allies and partners.

# HEAT ILLNESS CLINICAL SCENARIO

- 01 serving soldier, resident of Srinagar (J&K)
- Posted newly to his unit at Bikaner, Rajasthan a week earlier
- Ran 5 Km (BPET) in his unit in May 2021
- Presentation: very high fever, weakness, mental confusion & irritability
- On exam: Core body temp – 105.8°F, Pulse-134/min, impaired sensorium
- Diagnosis: Heat Stroke
- Initial mgt in his unit: Immediate measures for rapid cooling, intravenous fluids in cool room
- Shifted to Military Hospital and managed further; Recovered fully

# HEAT ILLNESS

- 03 serving soldiers, residents of Garhwal
- Serving at Silchar, Assam
- Ran marathon a day after returning from Annual Leave at home (Jul 2019)
- Presentation: Fatigue, nausea, vomiting, weakness, collapsed (After marathon)
- On exam: Febrile, rapid pulse, features of dehydration
- Diagnosis: Heat Exhaustion
- Managed with intravenous fluids, symptomatic treatment
- Outcome: Two soldiers recovered completely  
One soldier referred to Nephrologist due to kidney injury

# Unique Host Factors

- ▶ Mix Population
- ▶ Frequent changes and travel
- ▶ Long leaves
- ▶ Rigours training
- ▶ Competitive sports routine
- ▶ Challenging residential accn in field
- ▶ Clothing and heavy personal Kit/wepons issues
- ▶ Lack of rest and medical conditions
- ▶ Acclimatization issues
- ▶ Environmental factors







**Prevention**



**Cure**





# Prevention and First Aid at each level

- ▶ Education of each personnel
- ▶ Education of Commanders
- ▶ SOPs at all levels
- ▶ Water and hydration discipline
- ▶ RMO advisors to Commanders on training schedule
- ▶ Medical cover of training and sports events
- ▶ Training of paramedics
- ▶ Training of doctors in environmental emergencies
- ▶ Cold rooms/heat stroke centres in field and forward areas
- ▶ Stress on disciplined acclimatisation

| Relative Humidity | 50%  | 60%  | 70%  | 80%  | 90%  | 100% |
|-------------------|------|------|------|------|------|------|
| Temp C            |      |      |      |      |      |      |
| 28                | 28.4 | 29.4 | 30.7 | 32.1 | 33.7 | 35.6 |
| 29                | 29.7 | 31.0 | 32.7 | 34.7 | 37.1 | 39.7 |
| 30                | 31.0 | 32.8 | 35.0 | 37.7 | 40.7 | 44.2 |
| 31                | 32.6 | 34.8 | 37.6 | 40.9 | 44.7 | 49.0 |
| 32                | 34.4 | 37.1 | 40.4 | 44.4 | 49.0 | 54.2 |
| 33                | 36.3 | 39.5 | 43.5 | 48.1 | 53.5 | 59.7 |
| 34                | 38.4 | 42.2 | 46.8 | 52.2 | 58.4 | 65.5 |
| 35                | 40.7 | 45.1 | 50.3 | 56.5 | 63.7 | 71.7 |
| 36                | 43.1 | 48.1 | 54.2 | 61.2 | 69.2 | 78.2 |

**Extreme Caution - Heat cramp and exhaustion possible.**

**Danger - Heat exhaustion likely.**

**Extreme Danger - Heat stroke imminent.**







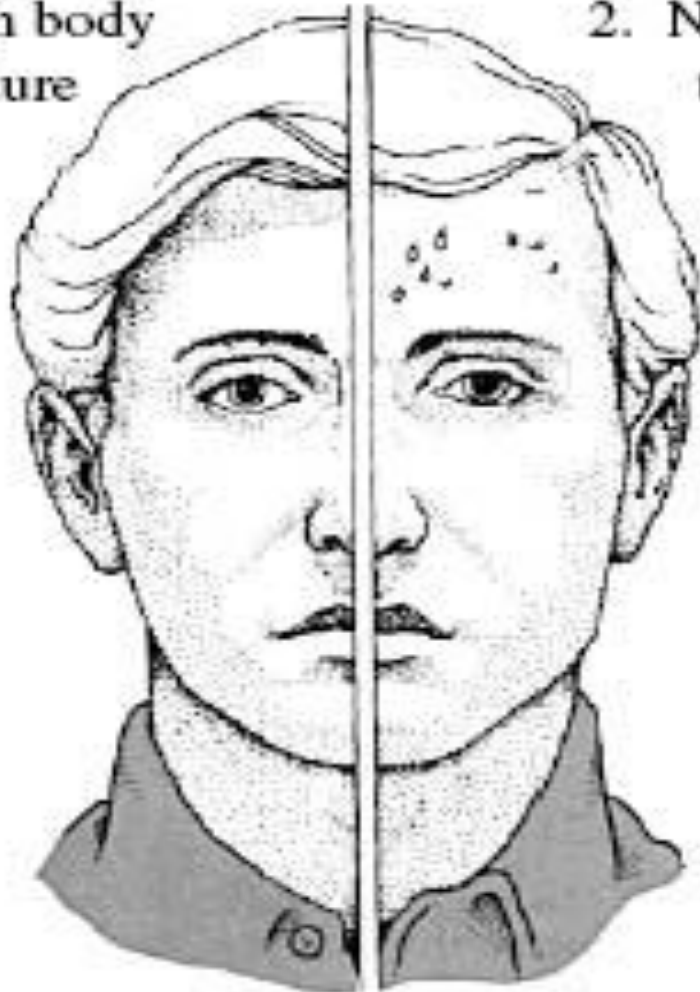
# HEAT STROKE vs HEAT EXHAUSTION

## Heat Stroke

1. Dry, hot skin
2. Very high body temperature

## Heat Exhaustion

1. Moist clammy skin
2. Normal or subnormal temperature



# FIRST AID

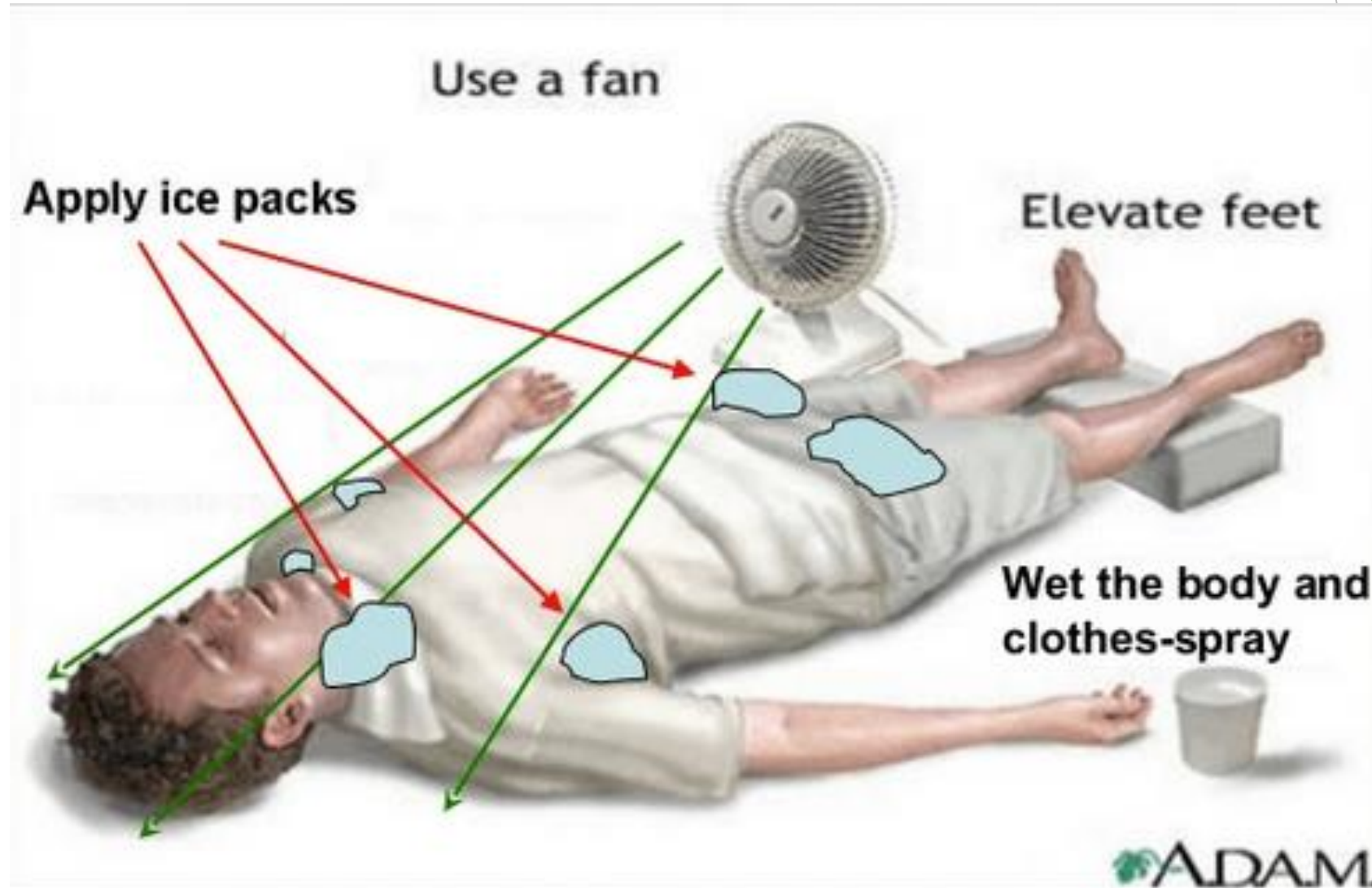
- ▶ To arrest the progress of the illness
- ▶ Avoid permanent neurological injury and save life.
- ▶ Remove the patient to a cool room. Start aggressive cooling.



# FIRST AID

- ▶ Move patient to cooler Environment.
- ▶ Remove Clothing and initiate External cooling.
- ▶ Place cold packs on the neck, axillae and groin. Carryout continuous fanning along with spraying of skin with water at 25<sup>0</sup>-30<sup>0</sup> C.
- ▶ Position unconscious patient on side and clear airway.
- ▶ Administer O2 at 4 l / min & give IV saline.
- ▶ Goal to lower Core temp to 39<sup>0</sup>C, promote cooling by conduction and evaporation. Continue cooling while evacuation

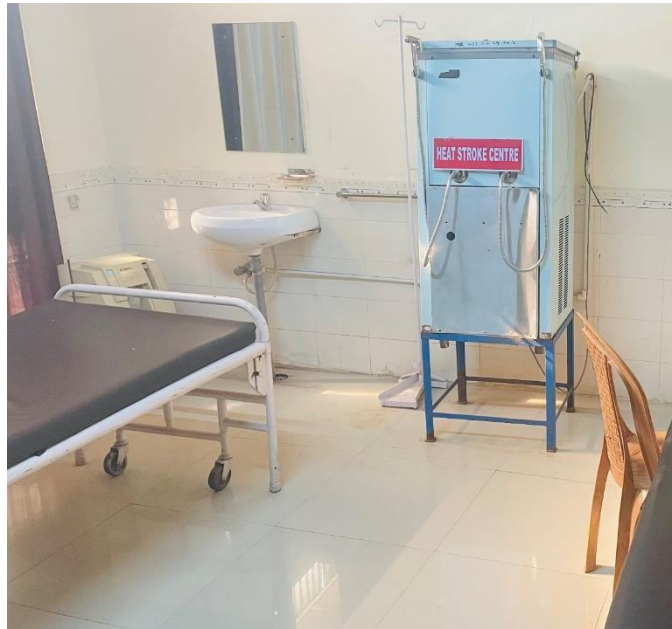
# Treatment at ED



# TREATMENT AT ED AND PROVISION OF COOL ROOM



PATENT PENDING PORTABLE, COLLAPSIBLE IMMERSION SYSTEM TO FACILITATE RAPID ON-SITE COOLING



SHOT ON REDMI 7  
AI DUAL CAMERA



# PREVENTION

- ▶ Acclimatization conditioning of ranks and edn of Cdrs.
- ▶ Acclimatization 2 weeks time
- ▶ Exertion short pd—sweats but no exhaustion after 1 wk freq and duration increased till they can do several hrs in day without exhaustion, no tests of endurance first 15 days
- ▶ Fluid intake
- ▶ Salt intake
- ▶ Discipline of hydration and acclimatization protocols is strictly ensured
- ▶ Most cases of heat related injuries do occur due to break in protocols

# CARRY HOME MESSAGE

- Hydrate
- Rest
- Shade







**THANK YOU**

