

Aug
2020

समाचार पत्रों से चयित अंश Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

Volume: 45 Issue: 197 24 August 2020



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Sun, 23 Aug 2020

मुजफ्फरपुर में 500 बेड का कोविड केयर अस्पताल बनवा रहा DRDO, 15 दिन में बनकर होगा तैयार

डिफेंस रिसर्च डेवलपमेंट ऑर्गेनाइजेशन (DRDO) द्वारा मुजफ्फरपुर (Muzaffarpur) के पताही हवाईअड्डा में 500 बिस्तरों वाला बनाया जा रहा कोविड केयर अस्पताल देश का तीसरा अस्पताल होगा जिसका निर्माण इस संस्थान ने किया है

प्रवीन ठाकुर

मुजफ्फरपुर: बिहार (Bihar) के मुजफ्फरपुर (Muzaffarpur) के पताही हवाईअड्डा मैदान में डिफेंस रिसर्च डेवलपमेंट ऑर्गेनाइजेशन यानी डीआरडीओ (DRDO) द्वारा 500 बेड की क्षमता वाला कोविड केयर अस्पताल (Covid Care Hospital) बनाया जा रहा है। इस अस्पताल को रिकॉर्ड 15 दिनों में तैयार करने का लक्ष्य रखा गया है। यह कोविड केयर अस्पताल 30 अगस्त तक बनकर तैयार हो जाने की संभावना है। जिसके अगले दिन यानी 31 अगस्त को उद्घाटन कर दिया जाएगा। लगभग आठ हजार स्क्वायर फीट जमीन में इस अस्पताल का निर्माण किया जा रहा है। 500 बेड क्षमता वाले कोविड केयर अस्पताल में 125 बेड आईसीयू और 375 बेड आइसोलेशन बेंच के तौर पर होगा। यह अस्पताल पूरी तरह वातानुकूलित होगा और इसमें कोरोना संक्रमित (Corona Virus) मरीजों के उपचार की सभी आधुनिक व्यवस्था की जाएगी।

DRDO चिकित्सक और नर्स की करेगा तैनाती

डीआरडीओ द्वारा निर्माण कराए जा रहे इस विशेष कोविड केयर अस्पताल में चिकित्सकों और नर्सों की तैनाती भी डीआरडीओ की ओर से ही किया जाएगा। पताही हवाईअड्डा मैदान में अस्पताल के अलावा दूसरे घर भी बनाए जा रहे हैं। इनमें कोविड अस्पताल में काम करने वाले लोगों के लिए रहने की व्यवस्था होगी। पूरी तरह से वातानुकूलित विशेष अस्पताल के दो हिस्सों में से एक में आइसोलेशन में जाने वाले पुराने संघ में मरीज होंगे। वहीं दूसरी तरफ आईसीयू में भर्ती मरीजों और वेंटिलेटर के अलावा सभी अत्याधुनिक उपकरण केस लगे रहेंगे। यहां ऑक्सीजन की सप्लाई के लिए अलग से पाइपलाइन दी गई है। अस्पताल के छत को पूरी तरह से वाटरप्रूफ बनाया गया है। 185 गुना 40 मीटर लंबाई वाले कोविड केयर अस्पताल में अग्निशमन सिलेंडर लगाने की भी व्यवस्था की गई है।



डीआरडीओ द्वारा बनाए जा रहे इस कोविड केयर अस्पताल का निर्माण 30 अगस्त तक हो जाने की संभावना है

जिला प्रशासन भी कर रहा सहयोग

आधुनिक तरीके से बनाए जा रहे इस अस्थाई कोर्ट के एक अस्पताल के निर्माण में मुजफ्फरपुर जिला प्रशासन सहयोग कर रहा है। पताही हवाईअड्डा मैदान में सड़कों के निर्माण के साथ प्रशासन शौचालय और किनारों का विनिर्माण भी कर रहा है। इसके अलावा आसपास हुए जलजमाव के निकासी के लिए संबंधित विभाग के अभियंताओं को टास्क सौंपा गया है।

कोरोना संक्रमण का बढ़ रहा मामला

मुजफ्फरपुर में प्रतिदिन औसतन सौ से अधिक कोरोना के मरीज सामने आ रहे हैं। फिलहाल जिले में 1200 से अधिक कोरोना पॉजिटिव मरीज हैं जिनका ईलाज अलग-अलग अस्पतालों में चल रहा है। एसकेएमसीएच के अलावा तुर्की स्थित मेडिकल कॉलेज में भी कोविड केयर अस्पताल बनाया गया है। लेकिन लगातार बढ़ रहे मामलों को देखते हुए डीआरडीओ द्वारा बनाए जा रहे इस आधुनिक कोविड केयर अस्पताल से कोरोना मरीजों के ईलाज में काफी सहूलियत होगी।

<https://hindi.news18.com/news/bihar/muzaffarpur-corona-virus-bihar-muzaffarpur-drdo-constructing-a-covid-care-hospital-it-will-ready-in-15-days-nodmk8-3211008.html>

Defence News

Defence Strategic: National/International



Mon, 24 Aug 2020

No reduction of Indian Army troops at LAC amid border row with China

In a message to China, India has made it clear that it is not going to lower its guard in the region. India will not reduce its number of troops deployed at LAC amid the ongoing border issues in eastern Ladakh

Edited By Namrata Agrawal

Highlights

- *India has made it clear that it is not going to lower its guard in the region, it will not reduce its number of troops deployed at LAC.*
- *Defence Minister Rajnath Singh held a meeting to review the overall security scenario in eastern Ladakh on Saturday.*
- *The meeting was attended by National Security Advisor Ajit Doval, Chief of Defence Staff Gen Bipin Rawat, Army Chief Gen MM Naravane, Navy Chief Admiral Karambir Singh and Air Chief Marshal RKS Bhadauria.*

New Delhi: In a strong message to China, India has made it clear that it is not going to lower its guard in the region. India will not reduce its number of troops deployed at LAC amid the ongoing border issues in eastern Ladakh.

On Saturday, Defence Minister Rajnath Singh reviewed the overall security scenario in eastern Ladakh. The meeting was attended by National Security Advisor Ajit Doval, Chief of Defence

Staff Gen Bipin Rawat, Army Chief Gen MM Naravane, Navy Chief Admiral Karambir Singh and Air Chief Marshal RKS Bhadauria.

All aspects of the dispute were discussed in the meeting and the future course of approach in dealing with the situation was also deliberated upon.

The meeting took place just two days after India and China held a fresh round of diplomatic talks to resolve the border row.

On Thursday, the two sides held another round of diplomatic talks following which the Ministry of External Affairs (MEA) said they had agreed to resolve outstanding issues in an "expeditious manner".



Meanwhile, China has increased its surveillance on the central sector of the Indian Army amid its border tension with India, according to intelligence report on Thursday. China has upgraded its surveillance system on the other side of Tun-Jun-La near Barahoti in Uttarakhand's Chamoli district. India's border is till Tun-jun-la, three kilometres ahead of Barahoti.

According to the report, China has installed two cameras rotating up to 180 degrees near the LAC. It has also installed several kinds of poles in that area. China has also built a large solar panel and a windmill in the area.

The Chinese military has pulled back from Galwan Valley and certain other friction points but the withdrawal of troops has not moved forward in Pangong Tso, Depsang and a couple of other areas.

India and China have held several rounds of military and diplomatic talks in the last two-and-half months but no significant headway has been made in resolution of the border row.

The Indian side has been insisting on complete disengagement of Chinese troops and immediate restoration of status quo in all areas of eastern Ladakh.

The tension between the two sides escalated after the violent skirmish in Galwan Valley on June 15, 2020 in which 20 Indian Army soldiers were killed. The Chinese side also suffered casualties but it is yet to give out the details.

Following the incident, the Army has sent thousands of additional troops to forward locations along the border. The IAF has also moved air defence systems as well as a sizeable number of its frontline combat jets and attack helicopters to several key airbases.

(With inputs from PTI)

<https://zeenews.india.com/india/no-reduction-of-indian-army-troops-at-lac-amid-border-row-with-china-2304786.html>

पूर्वी लद्दाख से पीछे नहीं हटेगी भारतीय सेना, चीन को साफ शब्दों में संदेश

नई दिल्ली: भारत ने चीन को स्पष्ट कर दिया है कि पूर्वी लद्दाख में भारतीय सेना पीछे नहीं हटेगी। सीमा विवाद को लेकर तनाव कम करने के लिए दोनों देशों की सेनाओं में चल रहे बैठकों का दौर जारी है। इस बीच, चीन ने भारत को पूर्वी लद्दाख में फिंगर क्षेत्र से समान दूरी पर पीछे हटने का सुझाव दिया था, जिसे भारत ने दो टूक शब्दों में खारिज कर दिया है। हालांकि, कूटनीतिक स्तर की बातचीत के बाद, दोनों पक्ष सीमा मुद्दे को सुलझाने के लिए सैन्य स्तर की और वार्ताएं करने पर भी काम कर रहे हैं।

यह सारी कवायद पूर्वी लद्दाख में तीन महीने से अधिक समय से चले रहे सीमा विवाद के निपटारे के लिए किया जा रहा है। इस दौरान, शीर्ष सैन्य कमांडरों ने भी अपने क्षेत्रीय कमांडरों को वास्तविक नियंत्रण रेखा (एलएसी) पर किसी भी घटना या कार्रवाई के लिए पूरी तरह से तैयार रहने के लिए कहा है। भारत सीमा पर लंबे समय तक डटे रहने की तैयारी कर रहा है।

सूत्रों ने न्यूज एजेंसी एएनआई को बताया, चीनी पक्ष ने सुझाव दिया था कि भारत और चीन दोनों को फिंगर-4 क्षेत्र से समान दूरी पर वापस हटना चाहिए। इसे भारत ने खारिज कर दिया। वहीं, भारत इस पर अडिग है कि चीन को पहले पीछे हटना चाहिए और फिर दोनों पक्ष पूर्वी लद्दाख और डेप्सांग के मैदानों और दौलत बेग ओल्डी क्षेत्रों से पीछे हटने पर चर्चा कर सकते हैं।

पूरी तरह पीछे हटे चीनी सेना: भारत

फिलहाल, चीनी पैगोंग त्सो झील के पास फिंगर-5 के आसपास हैं और उन्होंने फिंगर-5 से फिंगर-8 तक पांच किलोमीटर से अधिक की दूरी पर बड़ी संख्या में सैनिकों और उपकरणों को तैनात किया हुआ है, जिससे आगे अप्रैल-मई से पहले से चीनी बेस मौजूद हैं। भारतीय पक्ष ने यह स्पष्ट कर दिया है कि चीनी सेना को फिंगर क्षेत्र से पूरी तरह से पीछे हटना चाहिए और अपने वास्तविक स्थान पर वापस जाना चाहिए।

भारत ने चीन को कूटनीतिक तौर पर घेरा

सूत्रों ने कहा कि चीनी पक्ष के सुझाव को स्वीकार करने का सवाल ही नहीं उठता था। भारत, चीन की ओर से 1993-1996 में दोनों पक्षों के बीच हुए समझौतों का उल्लंघन करने के मुद्दे को भी उठा रहा है। इस समझौते में उन स्थानों पर किसी भी प्रकार के निर्माण पर रोक लगाई गई है, जहां एलएसी की धारणा दोनों पक्षों के बीच भिन्न होती है। चीनियों ने फिंगर क्षेत्र में भी निर्माण किया है जहां भारतीय क्षेत्र फिंगर-8 तक फैला हुआ है।

<https://www.livehindustan.com/national/story-clear-message-to-china-indian-army-will-not-back-out-of-east-ladakh-3439344.html>

Military option on table if talks fail: Rawat on China

The CDS, who was army chief during the 73-day military standoff in Doklam against the PLA in 2017, also dispelled the notion that there is a lack of coordination among the principal intelligence agencies

By Shishir Gupta

New Delhi: India's Chief of Defence Staff (CDS) General Bipin Rawat has explicitly stated that a military option to deal with transgressions by the Chinese People's Liberation Army in Ladakh is on the table, but will be exercised only if talks between the two armies and the diplomatic option are unfruitful.

"Transgressions along the LAC occur due to differing perceptions about its alignment. Defence services are tasked to monitor and carry out surveillance and prevent such transgressions turning into intrusions. Whole of government approach is adopted to peacefully resolve any such activity and prevent intrusions. Defence services always remain prepared for military actions should all efforts to restore status quo along the LAC do not succeed," General Rawat told Hindustan Times.

"Defence minister Rajnath Singh, National Security Advisor Ajit Doval and all those responsible for national security are reviewing all options with the objective that PLA restores status quo ante in Ladakh," he said.

The CDS, who was army chief during the 73-day military standoff in Doklam against the PLA in 2017, also dispelled the notion that there is a lack of coordination among the principal intelligence agencies. He said that India has a vast front-line along the northern and western borders along with the Indian Ocean Region, all of which require constant monitoring.

According to him, while India is still working towards acquiring round-the-clock capabilities to monitor its areas of interest, there is regular interaction between all agencies responsible for collection and collation of information. The apex multi-agency centre has been meeting on a daily basis, he pointed out, and constantly keeping everyone informed of the situation on the ground in Ladakh or any other area of interest.

On Saturday, defence minister Rajnath Singh met with the NSA and the three service chiefs to discuss the stand-off along the Line of Actual Control in Ladakh. China has built up its presence along the LAC in Ladakh, with India deploying heavily to match its northern neighbour.

A bloody skirmish between the two sides resulted in the death of 20 Indian soldiers and an unknown number of Chinese casualties on June 15, but while Beijing has repeatedly spoken of peace and tranquility, it continues to maintain its presence in the region.

Talks between the two armies and also a diplomatic dialogue are on to first totally disengage and then de-escalate, but the PLA is seen to be dragging its feet as the issue has a domestic political resonance. Gen Rawat refused to comment on the Saturday meeting and also declined to share any operational details.

On India's infrastructure development programmes in border areas, the CDS said this has been under way for some years now. "Regular meetings to prioritize and resource these projects are held. They (the projects) have been given the desired impetus over the past three to four years. Our infrastructure development like the construction of Darbuk-Shyok-Daulet Beg Oldi (DSDBO) road



Chief of Defence Staff (CDS) General Bipin Rawat, second right, with Indian Air Force Air Chief Marshal Rakesh Kumar Singh Bhadauria, right, Indian Army Chief General Manoj Mukund Naravane, left, and the chief of Indian Naval staff Admiral Karambir Singh

or developments in other areas of our northern borders have been undertaken to provide connectivity to our people who are otherwise seeking migration. It also simultaneously assists the security forces who are responsible for monitoring and maintaining surveillance along our border areas. The impetus by the way of prioritisation has helped in development of strategic connectivity for the future,” he said.

It is widely believed that the immediate reason for the Chinese transgressions was the construction of the DSDBO road.

India’s apex China Study Group, which comprises the government’s senior most ministers and officials, has been meeting regularly to review the situation in the Ladakh sector along with the military posture adopted by the PLA. The security agencies are constantly updating information collected through human and technical intelligence about the Chinese Army all along the 3,488-kilometre LAC.

The Indian Army is aware of not only the Chinese military capability in the occupied Aksai Chin area but also in the so-called depth areas through tech-intelligence and satellite imagery. The Indian Air Force has taken note of the Chinese posturing by moving J 20 stealth fighters into the Hotan air base and then moving them away to a different location.

<https://www.hindustantimes.com/india-news/military-option-on-table-if-talks-fail-rawat-on-china/story-yjoEqnv7pz0R1vw34VvONI.html>

The Statesman

Mon, 24 Aug 2020

Bengal’s Hasimara Air Force base ready to house Rafael jets

On the eastern frontier, Hasimara was selected as the base to house the second squadron. “We have some porous border in the Eastern sector, so Hasimara Air Force base being fortified,”he said

By Soma Mookherjee

Kolkata: By end of 2020, Hasimara Air Force Station in West Bengal’s Alipurduar district is expected to be ready to house Rafael fighter jets, which are expected to arrive here by end of mid 2021. While the first squadron will be based out of Ambala Air Force Station in Punjab, the second such squadron will be located at the Hasimara Air Force Station in North Bengal, said Grp Captain (rtd) R K Das.

Earlier, it was planned that one squadron of the Rafale would be based out of the Sarsawa Air Force Station in Uttar Pradesh. However, issues relating to land acquisition eventually led to the selection of the Ambala Air Force Station to prepare itself for a two-front war in the northern side from Pakistan and China, Grp Captain said. On the eastern frontier, Hasimara was selected as the base to house the second squadron. “We have some porous border in the Eastern sector, so Hasimara Air Force base being fortified,”he said.



Rafale fighter aircraft. (File Photo: IANS)

Hasimara earlier had a MiG-27 squadron which is being replaced by Rafales.

The Hasimara Air Force Station has no squadron presently. The jets have started arriving from France on 29 July2020 and a budget of Rs 400 crores has been allocated for these two Air Force Stations Ambala and Hasimara to build facilities, develop shelters, hangers and maintenance facilities at the two bases.

The hangars are so built that it can accommodate both the Rafales and Sukhoi MKIs.

It is expected that Rafale will serve the Indian Air Force for the next 40-50 years. Engineers and staff of the technical teams of Dassault Aviation from France are working at the Air Force Station on war footing, Grp Captain said

This apart, work on building a new facility in the Air Force Station and resurfacing of the runway has begun. Sukhois and Rafales are jets that tend to pick up any particles on the runway. Hence, resurfacing is important for smooth landings and takeoffs. Work on resurfacing the runway has begun already. The runway will be ready in a year

The last time the 8,500-9,000 ft in length runway was resurfaced was way back in 1993. While there were plans extending the runway, it was dropped later. Hasimara air base came up post the 1962 Sino-India War. This air base has housed several squadrons of the fighter jets like the – Gnats, Ajeets, Hunters, MiG-21Bis and the Mig-27 ML fighter jets.

<https://www.thestatesman.com/cities/kolkata/bengals-hasimara-air-force-base-ready-house-rafael-jets-1502919435.html>

hindustantimes

Mon, 24 Aug 2020

BSF to undergo tech upgradation, to get 436 drones and new anti-drone systems

In the past one year, Pakistani deep state is using Chinese commercial drones to transport assault rifles, pistols and grenades to the Khalistani terrorists in Punjab as well as jihadis in Jammu and Kashmir

By Shishahir Gupta

New Delhi: With Rakesh Asthana taking over as full-time Director General of the Border Security Force (BSF), technological upgradation of the force has started with approval for 436 small and micro drones for border surveillance and anti-drone system being currently tested on India-Pakistan border to shoot down any drone carrying weapon-load for terrorists in Punjab, and Jammu and Kashmir.

Under the Comprehensive Integrated Border Management (CIBM) plan, all 1923 border outposts manned by BSF on Pakistan and Bangladesh border will be equipped with sensors, CCTV and drone feeds from the sector headquarters with as many as 1,500 posts (as rest are in remote locations) being able to fly drone to receive the border and use anti-drone system to shoot any weapon payload transportation from across.

According to senior Ministry of Home Affairs (MHA) officials, while the cost of small and micro drone will come around Rs 88 crore, the BSF with the help of security agencies is currently testing an indigenous anti-drone system on the sensitive Punjab border with Pakistan. In the past one year, Pakistani deep state is using Chinese commercial drones to transport assault rifles, pistols and grenades to the Khalistani terrorists in Punjab as well as jihadis in Jammu and Kashmir.

By killing five Pakistani intruders carrying assault rifles and Afghan heroin on Friday morning, the new DG has made his intentions clear that the BSF will be pro-active on both the borders and will not allow any anti-India activity. It is understood that the BSF chief personally spoke to the company commander who carried out the successful operation in Taran Taran sector.

As Rakesh Asthana also holds the charge of DG, Narcotics Control Bureau (NCB), the G Branch or the intelligence branch of the BSF is also being revived so that Afghan drugs do not make their way across the Pakistan border or the Line of Control (LoC) in Jammu and Kashmir. In



Under the Comprehensive Integrated Border Management plan, all 1,923 border outposts manned by BSF on Pakistan and Bangladesh border will be equipped with sensors and CCTVs.

this context, a common strategy will be adopted between the BSF and NCB to bring big cross border drug kingpins to book as the narcotic trade funds the cross border weapons smuggling and terrorism both in Punjab and Jammu and Kashmir. In the past decade, India has not only become the hub of drug transshipment but also a major consumer of narcotics like heroin and cocaine from Afghanistan.

<https://www.hindustantimes.com/india-news/bsf-to-undergo-tech-upgradation-to-get-436-drones-and-anti-drone-systems/story-ozOo4aTjYtBQkXnBRLM8J.html>



Mon, 24 Aug 2020

Pie in the sky: The artificial ace

A spectacular dogfight scoreline is tantalising, but still leaves a lot unsaid about the future of AI and autonomous warfare

By Angad Singh

In a highly publicised match up on 20 August, an artificial intelligence (AI) algorithm beat a seasoned human aviator in a series of simulated dogfights. The bout took place entirely in software, with the USAF F-16 pilot (known only by his call sign, ‘Banger’) flying with the aid of a virtual reality setup against an all-computer AI opposition from Heron Systems, a small US-based defence contractor. The rules limited the combatants to five rounds of within visual range combat, with guns being the only weapons available. Banger, a graduate of the elite USAF Weapons School, lost all five engagements. This simulation, called ‘AlphaDogfight,’ was the final phase of an autonomous technology initiative that is a subset of the Defense Advanced Research Projects Agency (DARPA) Air Combat Evolution (ACE) programme, which aims to bring AI and machine learning to bear on critical elements of future aerial combat.

The DARPA commentators for the global livestream made some effort to contextualise the results of the day, noting that the AI had perfect awareness in the simulation, something that would not be possible in the real world, and that certain tactics were simply not realistic in actual combat, such as the head-on, close-in gun firing that netted the Heron artificial agent most of its victories. Even though he called it “a giant leap” for autonomous air combat technology, one of the commentators, himself an F-16 pilot, pointed out that the successful demonstration was nonetheless “a far cry from going out in an F-16 and flying actual BFM [Basic Fighter Manoeuvres].” The DARPA commentary also made clear that while the display of simulated autonomous combat was a significant milestone accomplished in record time, it was only a first step toward the larger goals of the ACE programme. Autonomous combat simulations will first have to demonstrate greater robustness and handle more complex scenarios in software, before eventually moving to sub-scale aircraft demonstrations in the real world, and much later being tested on actual combat-representative platforms.

Technical quibbles and caveats aside, the singularly impressive demonstration does drive home the changes imminent in the nature of warfare, and not just in the aerial domain. Beyond the dangers of combat and the physical limitations of the human body that autonomous technologies mitigate or eliminate, AI in warfare, even just at the tactical level, has distinct advantages — algorithms learn faster than humans, their ability to parse data is not subject to fatigue or bias (barring what is programmed in — a topic that does merit further exploration), and their outputs are more precise. A lot of this is already in use today, for example in sensor fusion across multiple sensors, or multi-platform, multi-sensor data fusion to dramatically enhance battlespace awareness, whether for fighter pilots, fleets at sea, or air defence commanders in the tactical battle area.



Programmes like DARPA's ACE simply aim to take this to the next logical level — extending beyond decision support to actual autonomous decision making.

Beyond the dangers of combat and the physical limitations of the human body that autonomous technologies mitigate or eliminate, AI in warfare, even just at the tactical level, has distinct advantages — algorithms learn faster than humans, their ability to parse data is not subject to fatigue or bias (barring what is programmed in — a topic that does merit further exploration), and their outputs are more precise.

AI and autonomous technologies have come a long way. Far from being esoteric concepts aimed at distant horizons, autonomy in the air and on the surface are a reality today, with drones operating without human intervention from aircraft carriers, tankers delivering fuel to fighters, and ships traversing vast distances unaided. In fact, the speed with which the AlphaDogfight demonstration itself was conducted is indicative of the maturity of the field — in just 12 months, eight companies delivered credible autonomous performances, and the leading solution among them managed to handily beat a human pilot.

The ACE programme is air-focused, intending to team pilots in manned aircraft with swarms of highly capable autonomous drones able to dogfight, strike, jam or simply observe an adversary. The basic concept however — transforming the pilot who was once a vehicle or weapon operator, who is now a systems operator, into a 'situation manager' focused on tasking and delegation in the battle space — applies to combat on land and sea as much as the aerial domain. It is no surprise then, that major military powers, [including China](#), are investing heavily in military AI.

Meanwhile, questions regarding the ethics of autonomous weapons have become more pressing in face of ever accelerating research, with calls for outright bans on fielding or further development. China has hedged by calling for a ban on the use of such weapons, but not their development, while the broader international community is yet to arrive at a consensus. As with missiles or nuclear technology in the past, there is a danger that India might be frozen out of the AI game before it even has a chance to start.

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As India faces the undeniable, inevitable trimming of its manpower intensive, fiscally constrained military, autonomous 'force multipliers' will logically come to the fore. India's defence bureaucracy, known for indecision, and its defence practitioners, prone to parochialism, must recognise that the Indian military's chronically delayed modernisation could benefit greatly by skipping a generation straight to widespread adoption of autonomous platforms, whether operating in teams with human warfighters or completely autonomously. For instance, the Indian Navy's dangerous lack of minesweepers could be remedied with rapidly produced autonomous mine countermeasures vessels instead of far larger and more expensive manned ships. Persistent surveillance, something chronically lacking across the three services, and most recently exposed by the crisis in Ladakh, is easily addressed by autonomous platforms. And of course, the IAF's oft-lamented fighter fleet would be able to dramatically increase deliverable effects if recapitalisation involved light, optionally expendable autonomous swarms rather than full fledged manned fighters that are orders of magnitude more expensive.

<https://www.orfonline.org/expert-speak/pie-sky-artificial-ace/>

Built consensus to induct women fighter pilots, says ex-IAF Chief

The controversy triggered by the Netflix film, Gunjan Saxena: The Kargil Girl, has turned the spotlight on women in the military, particularly the air force

By Rahul Singh

New Delhi: Former Indian Air Force chief Arup Raha (retd), under whose leadership women officers were cleared to join the fighter stream for the first time, said some people in the service raised “practical concerns” over women flying war planes and he built a consensus to end the rigid gender-based combat exclusion policy.

The decision to induct women in the fighter stream was taken five years ago.

“I won’t say there were no challenges and the proposal to allow women in the fighter stream faced no resistance. But this wasn’t due to a gender bias. It was because people pointed out practical difficulties related to biological issues — mainly pregnancy-related aspects,” air chief marshal Raha told HT.



The controversy triggered by the Netflix film, Gunjan Saxena: The Kargil Girl, has turned the spotlight on women in the military, particularly the air force. While women officers have been flying helicopters and transport planes for more than two decades, the IAF’s first female fighter pilots were commissioned into service only three years ago.

Raha said he dealt with the internal resistance to the proposal to allow women to fly fighter jets by emphasising the need to be progressive and giving them a chance to realise their aspirations.

“My argument was if women want to become fighter pilots, then why should we stop them? Women pilots cannot perform the duties assigned to them during pregnancy as that may not be good for the mother and the baby. But that would be for a certain period of time. The bigger goal was to empower women and people eventually understood that,” said Raha.

In 2016, the IAF advised its first batch of three women trainees to put off motherhood for at least four years after they got into service so that their training schedule was not disrupted. That was only an advisory and not a no-pregnancy clause.

The decision to allow women to fly warplanes was taken on an experimental basis in 2015 for five years. The air force is set to expand the scope of the experimental fighter pilot programme for women, IAF Air Chief Marshal RKS Bhadauria told HT in an interview in May.

Nine women have been commissioned as fighter pilots after the experimental scheme for their induction into the combat stream was introduced in 2015, a watershed in the air force’s history. The government then said it was a progressive step that mirrored contemporary trends in the militaries of developed countries. “I think women fighter pilots have settled into their new roles rather well and their performance matches that of their male counterparts. It’s important to empower women in our country where even educated families sometimes do not provide them equal opportunities,” said Raha.

The former IAF Chief said he hadn’t watched the film, Gunjan Saxena: The Kargil Girl, but felt miserable about the way the air force had been projected from reading some reviews.

“The film has maligned the reputation of the IAF. The content appears to have been trivialized and commercialized. The film makers have wasted an opportunity to project women and the military in the right light,” Raha said.

Currently, there are a total of 111 women pilots serving in the IAF, including those who fly transport planes and choppers.

The head count of women in the military adds up to nearly 3,500, but combat roles were off limits to them until the IAF took the lead in crushing internal resistance to induct them into the fighter stream.

Warships, tanks and combat positions in infantry are still no-go zones for women, who were allowed to join the armed forces outside the medical stream for the first time in 1992.

The armed forces began inducting women by granting them short-service commission for five to 10 years before the government came out with a new policy in 2008 to give them permanent commission in a few arms and services.

<https://www.hindustantimes.com/india-news/built-consensus-to-induct-women-fighter-pilots-says-ex-iaf-chief/story-BAoPgmfrmjn8WrnbnNMuK.html>

Business Standard

Mon, 24 Aug 2020

Boeing pushes hard for jet contracts; looks to Super Hornet for Navy, IAF

Looks to Super Hornet for Indian Navy, IAF; new F-15EX also on its list

By Ajai Shukla

New Delhi: US aerospace major, Boeing, which accounts for most of the \$18-billion worth of weaponry that Washington has sold India since 2005, is pressing hard to win a \$7-8 billion Indian Navy contract for 57 aircraft carrier-borne fighters.

Boeing has begun testing its flagship naval fighter, the F/A-18E/F Super Hornet, which it intends to offer the Indian Navy, to prove it can operate from any of the Indian Navy's three carriers: the in-service INS Vikramaditya; Vikrant, which is to be commissioned by 2022; and INS Vishal, which is still on the drawing board.

"Boeing and the US Navy are in the beginning phases of operating an F/A-18 Super Hornet from a ski jump at Naval Air Station Patuxent River to demonstrate it is STOBAR compliant for the Indian Navy," states Boeing.

In STOBAR (short take off but arrested recovery) aircraft carrier operations, fighters get airborne by flying off a "ski-jump" like slope at the end of the flight deck. The aircraft land back by snagging their tail hooks on arrestor wires spread across the deck, which drag them to a halt. Both INS Vikramaditya and Vikrant are STOBAR carriers.

US Navy aircraft carriers and their aircraft such as the Super Hornet are, however, built for "catapult assisted take off but arrested recovery" (CATOBAR). In this, on-board aircraft are accelerated to take-off speed by a steam or electro-magnetic catapult, doing away with the need for a ski-jump. INS Vishal is being built as a CATOBAR carrier.

Proving that the Super Hornet can operate off both STOBAR and CATOBAR carriers would enhance India's fleet commonality and economy.

Before commencing ski-jump tests, Boeing says the Super Hornet has completed more than 150 computer simulations. "While our assessment has shown the Block III Super Hornet is very capable of launching off a ski jump, this is the next step in demonstrating that capability," said Boeing.



The shore-based ski-jump at Patuxent River was built to test the F-35B Lightning II – the short take-off and vertical landing (STOVL) version of the Joint Strike Fighter. India, too, has built a similar shore-based facility in Goa for testing the naval version of the Tejas fighter.

The Indian Navy began the acquisition of 57 multi-role carrier borne fighters (MRCBF) in 2017 by issuing a Request for Information (RFI) about “day and night capable, all weather, multi-role, deck based combat aircraft, which can be used for air defence, air-to-surface operations, buddy refuelling, reconnaissance [and] electronic warfare missions from Indian Navy aircraft carriers.”

The 2017 RFI specifically asks vendors whether the fighter they are offering is capable of STOBAR as well as CATOBAR operations.

The quest for a MRCBF is rooted in the navy’s disappointment over the unreliable performance of 45 MiG-29K/KUB fighters that it procured from Russia along with INS Vikramaditya.

The need for a MRCBF was made even more urgent by delays in developing a naval version of the indigenous Tejas light fighter. The navy assessed that the single-engine fighter could not carry enough weaponry, or fuel payload, to allow it to operate effectively off a carrier. Naval planners, therefore, have rejected the Tejas Mark 1 and stated they want a heavier, more powerful, twin-engine fighter that India can develop only by 2025.

The formal MRCBF tender is still awaited but industry analysts believe the contenders will be: The Super Hornet, the MiG-29K/KUB and navalised versions of the Rafale and Gripen E, called the Rafale Marine and Sea Gripen, respectively.

Ironically, Boeing’s thrust in the MRCBF procurement comes at a time when a stressed defence budget has placed a question mark over the acquisition of a third carrier. The Indian Air Force (IAF) argues that shore-based air power is more effective than carrier-based fighters, and costs less. The tri-service chief, General Bipin Rawat, who prioritises expenditure between the three services, has expressed reservations over spending heavily on an aircraft carrier and its air wing.

Boeing could also offer the Super Hornet in the ongoing IAF procurement of 114 medium fighters, achieving economy of scale by taking the numbers up to 171 aircraft. Saab will seek similar benefits, while Dassault – which has already sold India 36 Rafales and would also compete in both these tenders – would garner even greater benefits of scale.

Meanwhile, Boeing is also weighing restricting the Super Hornet offer to the Indian Navy, while offering the IAF its upgraded F-15EX fighter. Pratyush Kumar, who oversees the F-15 programme, confirmed last month that Boeing had requested the US government for a marketing licence to commence discussions with New Delhi about the F-15EX. However, Boeing will only decide whether to offer the Super Hornet or the F-15EX once the IAF defines the specifications of the fighter it wants.

https://www.business-standard.com/article/defence/boeing-pushes-hard-for-jet-contracts-looks-to-super-hornet-for-navy-iaf-120082400029_1.html

Mon, 24 Aug 2020

IIT Bombay, Shiv Nadar researchers develop environment friendly, cost efficient lithium batteries

Lochab's team has partnered with Sagar Mitra, IIT Bombay's Professor in the Department of Energy Science and Engineering, to use the research for the development of a Li-S battery prototype

Researchers at the Indian Institute of Technology (IIT) Bombay and Shiv Nadar University claim to have developed a technology for production of environment friendly Lithium-Sulfur (Li-S) batteries which will be three times more energy efficient and cost effective than Lithium-ion batteries commonly used at present.

According to the team, the Li-S battery technology leverages principles of green chemistry, incorporating usage of by-products from the petroleum industry (Sulfur), agro-waste elements and copolymers such as cardanol (a by-product of cashew nut processing) and eugenol (clove oil) as cathodic materials.

The researchers said the technology has the potential to aid multi-billion dollar industries including tech gadgets, drones, electric vehicles (EV) and several more that depend on such batteries.

“The research focusses on principles of green chemistry to find a solution that addresses requirements of industries and the environment, simultaneously. The capability of three times more energy density, coupled with being a significantly safer technology, holds the promise of accelerating the adoption of clean, battery-led energy across multiple domains,” Bimlesh Lochab, Associate Professor at Shiv Nadar University, told PTI.

“For example, an electric car with a 400 km range using conventional Lithium-ion batteries can now quadruple its range to 1600 km on a single charge with this technology, while being compact in size and much safer to use than traditional Lithium-ion batteries. To put this in perspective, it could mean driving from Delhi to Mumbai on a single charge and still being left with power,” she added.

Lochab’s team has partnered with Sagar Mitra, IIT Bombay’s Professor in the Department of Energy Science and Engineering, to use the research for the development of a Li-S battery prototype.

“From our laptops, mobile phones and smart watches to even electric cars depend on them. They are not efficient in terms of energy storage, they are heavy, expensive, extremely hard to recycle and also prone to combustion. The research innovatively used eugenol (derived from clove oil) copolymer, which is also environmentally sustainable, halogen-free, flame-retardant, and reduces the combustible propensities, making the battery remarkably safe to use,” Mitra said.

The new battery technology synthesises a bio-based molecule, capable of commercial-scale production. The research includes a new type of cathode for Li-S batteries, which can help push the promising battery technology to higher performance levels.

“The use of cardanol for Sulfur-based structures as an unconventional application to create cathode materials in this next generation Li-S battery technology has exhibited enhanced capacity retention (among the highest charge capacities reported) and longer battery life in a significantly smaller battery unit. The Sulfur for the battery is sourced from industrial waste and cardanol is sourced from bio-renewable feed-stock that is easily available, non-toxic and environmentally friendly,” Mitra added.

<https://www.financialexpress.com/lifestyle/science/iit-bombay-shiv-nadar-researchers-develop-environment-friendly-cost-efficient-lithium-batteries/2063034/>



Mon, 24 Aug 2020

A New Lens on the World: Revolutionizing optics by combining nanostructured metasurfaces with liquid crystal technology

Case Western Reserve scientists, collaborators at Harvard and Italian university Unical, aim to ‘revolutionize optics’ by combining nanostructured metasurfaces with liquid crystal technology

For more than 500 years, humans have mastered the art of refracting light by shaping glass into lenses, then bending or combining those lenses to amplify and clarify images either close-up and far-off.

But in the last decade or so, a group led by scientist Federico Capasso at Harvard University has begun to transform the field of optics by engineering flat optics metasurfaces, employing an array of millions of tiny microscopically thin and transparent quartz pillars to diffract and mold the flow of light in much the same way as a glass lens, but without the aberrations that naturally limit the glass.

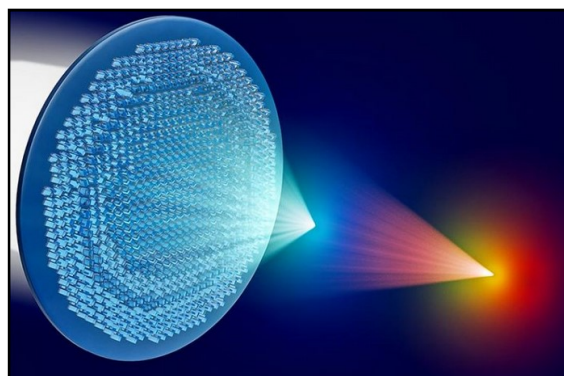
The technology was selected as among the Top 10 Emerging Technologies by the World Economic Forum (WEF) in 2019, which remarked that these increasingly smaller, clearer lenses would soon begin to be seen in camera phones, sensors, optical-fiber lines and medical-imaging devices, such as endoscopes.

“Making the lenses used by mobile phones, computers and other electronic devices smaller has been beyond the capabilities of traditional glass cutting and glass curving techniques,” according to the WEF. “...These tiny, thin, flat lenses could replace existing bulky glass lenses and allow further miniaturization in sensors and medical imaging devices.”

Making metalenses ‘reconfigurable’

Now, Case Western Reserve University physics professor Giuseppe Strangi and collaborators at Harvard have taken a step toward making these “metalenses” even more useful—by making them reconfigurable.

They did this by harnessing nanoscale forces to infiltrate liquid crystals between those microscopic pillars, allowing them to shape and diffract the light in completely new ways—“tuning” the focusing power, Strangi said.



An illustration of how a metalens refracts light. Credit: Giuseppe Strangi & Federico Capasso

Liquid crystals are especially useful because can be manipulated thermally, electrically, magnetically or optically, which creates the potential for the flexible or reconfigurable lenses.

“We believe that this holds the promise to revolutionize optics as we know it since the 16th century,” said Strangi, whose Nanoplasma Lab at Case Western Reserve investigates “extreme optics” and the “interaction of light and matter at nanoscale,” among other matters.

Until recently, once a glass lens was shaped into a rigid curve, it could only bend the light in one way, unless combined with other lenses or physically moved, Strangi said.

Metalenses changed that, since they allow to engineer the wavefront by controlling phase, amplitude and polarization of the light.

Now, by controlling the liquid crystal, the researchers have been able move these new class of metalenses towards new scientific and technological endeavors to generate reconfigurable structured light .

“This is just the first step, but there are many possibilities for using these lenses, and we have already been contacted by companies interested in this technology,” Strangi said.

The paper announcing the breakthrough was published in early August by the *Proceedings of the National Academy of Sciences*.

Strangi collaborated with several other researchers in the United States and Europe, including fellow Case Western Reserve researchers Andrew Lininger and Jonathan Boyd; Giovanna Palermo of Università della Calabria in Italy; and Capasso, Alexander Zhu and Joon-Suh Park of the John A. Paulson School of Engineering and Applied Sciences at Harvard University.

Lininger said part of the problem with current applications of metasurfaces is that their shape is fixed at the point of production, but “by enabling reconfigurability in the metasurface, these limitations can be overcome.”

Capasso, who pioneered the flat optics research field and in 2014 first published research on metalenses, credited Strangi for the idea to infiltrate the metalenses with liquid crystals and said this innovation represents a step toward even bigger things.

“Our ability to reproducibly infiltrate with liquid crystals state-of-the art metalenses made of over 150 million nanoscale diameter glass pillars and to significantly change their focusing properties is a portent of the exciting science and technology I expect to come out of reconfigurable flat optics in the future,” Capasso said.

Reference: “Optical properties of metasurfaces infiltrated with liquid crystals” by Andrew Lininger, Alexander Y. Zhu, Joon-Suh Park, Giovanna Palermo, Sharmistha Chatterjee, Jonathan Boyd, Federico Capasso and Giuseppe Strangi, 10 August 2020, *Proceedings of the National Academy of Sciences*.

[DOI: 10.1073/pnas.2006336117](https://doi.org/10.1073/pnas.2006336117)

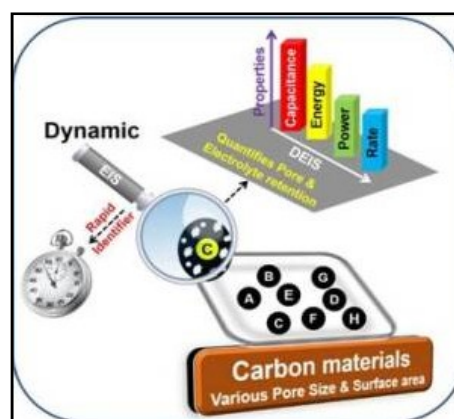
<https://scitechdaily.com/a-new-lens-on-the-world-revolutionizing-optics-by-combining-nanostructured-metasurfaces-with-liquid-crystal-technology/>

ARCI Scientists convert biomass waste to supercapacitor electrodes

Tamarind seeds and cotton waste may soon be used to make low-cost supercapacitors for energy storage – thanks to the efforts of a group of Indian scientists who have used such waste biomass to develop materials for making cost-effective supercapacitor devices...

Tamarind seeds and cotton waste may soon be used to make low-cost supercapacitors for energy storage – thanks to the efforts of a group of Indian scientists who have used such waste biomass to develop materials for making cost-effective supercapacitor devices. This can pave the way towards affordable electric vehicles and hybrid vehicles which bank on supercapacitors significantly for their application in braking systems and start-stop cycles.

Responding to the intense hunt for supercapacitor materials to meet the widespread demand for supercapacitors, Scientists at the International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), an autonomous institute of the Department of Science and Technology (DST), Govt. of India, have developed a couple of cost-effective electrode material for making affordable supercapacitor devices, from waste biomass like tamarind seeds and industrial cotton waste. They have converted the waste materials into highly porous carbon fibres by activation process and then utilised the porous carbon fibres to make high-performance supercapacitor electrodes. The findings of their recent work have been published in the *'Journal of Materials Science: Materials in Electronics.'*



The electrode materials made from the biomass waste has been tested with the help of a rapid testing protocol developed by Scientists at Centre for Fuel Cell Technology, ARCI-Chennai to evaluate different porous electrode materials for their suitability in supercapacitors. The protocol involves Electrochemical Impedance Spectroscopy (EIS) and records the impedance (a parameter used to measure the opposition that a circuit presents to a current when a voltage is applied) offered by a material under a small perturbation and the capacitance (ratio of the change in electric charge of a system to the corresponding change in its electric potential) formed by the arrangement of electrolyte ions over the electrode surface, which is called as double-layer capacitance.

The ARCI scientists used it to test the pore characteristics and stability of the activated carbon material prepared from tamarind seed and its suitability for supercapacitor application.

The Dynamic Electrochemical Impedance Spectroscopy (DEIS) results observed by the ARCI team exhibited a superior double layer capacitance value at all the applied potentials for the optimized sample with high surface area ($2645 \text{ m}^2 \text{ g}^{-1}$) within 1 hour of the experiment, validating that the material could be used for supercapacitor electrode.

(Dynamic Electrochemical impedance spectroscopy as a rapid screening procedure to identify supercapacitor electrode material)

<https://www.eetindia.co.in/arci-scientists-convert-biomass-waste-to-supercapacitor-electrodes/>

Anti-fibrotic drugs effective in Covid-19 patients: Army

“The researchers at the Pune-based Army Institute of Cardiothoracic Sciences (AICTS) have found this therapy very effective in this subset of Covid-19 patients and they were safely tolerated as well. This is a novel strategy to tackle the lung fibrosis to treat subset of Covid-19 patients,” the release said

Pune: For the first time in the country, anti-fibrotic drugs have been used to treat patients suffering from Covid-19-related lung fibrosis and breathlessness which has helped in the recovery of four such patients in Maharashtra’s Pune, the Army has said.

“The researchers at the Pune-based Army Institute of Cardiothoracic Sciences (AICTS) have found this therapy very effective in this subset of Covid-19 patients and they were safely tolerated as well. This is a novel strategy to tackle the lung fibrosis to treat subset of Covid-19 patients,” the release said.

It said these are early results and more research is being undertaken in this field to identify the patients who are likely to benefit from the therapy.

“Scientists have achieved a breakthrough in management of severe cases by commencing anti-fibrotic therapy in four such patients who were difficult to wean from oxygen due to extensive lung fibrosis. The patients have been discharged from the hospital after the recovery,” it said.

It said a breakthrough in management of severe cases has been achieved by pulmonologists at the Pune-based AICTS by commencing anti-fibrotic therapy (tablet Nintedanib) in four such patients.

“The therapy proved to be very helpful in reducing the oxygen requirement of these patients and they were discharged home on minimal oxygen after few weeks.

“This is the first time in the country that these anti-fibrotic drugs have been used in Covid-19 related lung fibrosis. These drugs have been used for other types of lung fibrosis secondary to auto-immune diseases (arthritis related) and idiopathic pulmonary fibrosis,” it said.

These drugs have an established safety profile in these fibrotic diseases, the statement said.

“Researchers at AICTS have found this therapy very effective in this subset of Covid-19 patients and they were safely tolerated as well. This is a novel strategy to tackle the lung fibrosis to treat subset of Covid-19 patients,” it said.

The release said it had been observed that a significant number of patients treated for severe Covid pneumonia are developing lung fibrosis, which means a severe scarring of lung tissue that causes low oxygen levels.

“This may manifest as fatigue, breathlessness and lifelong requirement of oxygen support,” it said.



The release said these are early results and more research is being undertaken in this field to identify the patients who are likely to benefit from the therapy.(Reuters file photo. Representative image)

“The lung fibrosis is usually seen in those patients who are detected late and have extensive pneumonia. Many a times, it becomes difficult to wean these patients off oxygen in spite of anti-inflammatory therapies like steroids and they remain in ICU for a long period of time,” it added.

<https://www.hindustantimes.com/india-news/anti-fibrotic-drugs-effective-in-covid-19-patients-army/story-8z3wtyaXTGzbcDHOrRiJCO.html>



Mon, 24 Aug 2020

Covid-19 fight: ICMR begins trials to use BCG vaccine; results to be known next year

By Kalyan Ray

Indian Council of Medical Research has begun a trial in which anti-tuberculosis BCG vaccine which is given to babies after birth, will be administered to 60 plus people to find out if the vaccine protects the elderly from Covid-19.

Being conducted at six sites, the trial spearheaded by the ICMR's National Institute for Research in Tuberculosis, Chennai will entail BCG vaccination for nearly 1,600 individuals, who would be monitored for six months to check if the strategy works.

The ICMR decided to conduct following multiple scientific reports of how countries with BCG vaccine in their child immunization portfolio had benefited indirectly with a lower number of Covid-19 positive cases as well as deaths.

'BCG boosts immunity. This is the reason we have gone on trials to check whether the vaccine can be used in elders. Whether it is efficient or not will be known only after results come out,' Manoj Murhekar, director, NIRT told DH.

The trials began in July in Chennai and Tiruvallur districts of Tamil Nadu. Other sites are National Institute of Occupational Health, Ahmedabad; National Institute for Research in Environmental Health in Bhopal; GS Medical College and KEM Hospital in Mumbai; National Institute for Implementation Research on Non-Communicable Diseases in Jodhpur and All India Institute of Medical Sciences, Delhi.

'The study will cover around 1,600 healthy individuals above the age of 60. Vaccination will be over by September-October, after which they will be monitored for the next six months to check if it works,' Murhekar said.

The principal investigator and NIRT scientist C Padmapriyadarsini said while the vaccine would be administered to around 1,600 people across the sites, the institute currently didn't have a compilation of the number of people who received the shots.

'We do not have the number of people who have been given the vaccination at present. We have not noticed any side-effects in any of the patients so far, but will be able to provide a better response after the completion of the trials.'

The BCG vaccine is one of the several repurposed therapies that scientists are currently experimenting with in order to find out a way to tackle the Covid-19 pandemic.

'BCG is an immunopotentiator. It is being tested elsewhere also. A large trial in Australia is being carried out with the aim to see if it offers non-specific protection. Even if it works to some extent and short term the advantage is it's very cheap,' commented veteran virologist Shahid Jameel, chief executive officer of Wellcome Trust-Department of Biotechnology India Alliance, which is an India-UK partnership to promote biotechnology research.



Representative image. Credit: iStock

Gobardhan Das, a biologist at Jawaharlal Nehru University, Delhi who researches on BCG vaccine concurs. 'Revaccination with BCG is a strategy being tried around the world and trials are yielding results. In several other diseases, BCG is administered to the adults as a part of the therapy,' he said.

<https://www.deccanherald.com/national/covid-19-fight-icmr-begins-trials-to-use-bcg-vaccine-results-to-be-known-next-year-876880.html>

TIMESNOWNEWS.COM

Mon, 24 Aug 2020

COVID-19 patient autopsies show lung injuries and blood clots as common damage due to coronavirus

A post-mortem study of patients who died from COVID-19 shows severe damage to lungs, blood clotting in major organs

By Anushree Gupta

New Delhi: When the novel coronavirus was first reported in Wuhan, China, it was found and believed to only cause a pneumonia-like respiratory illness that could cause some damage to the lungs. However, as the disease progressed, it was reported to affect other vital organs such as the heart and kidneys as well. Blood clots, even in young people, were commonly reported due to COVID-19. Research has now found that upon conducting autopsies on patients who died due to COVID-19, it was found that the virus can cause lung injuries, and blood clots in vital organs of the body, such as the kidneys.

A post-mortem study of patients who died from COVID-19 shows severe damage to lungs, blood clotting in major organs

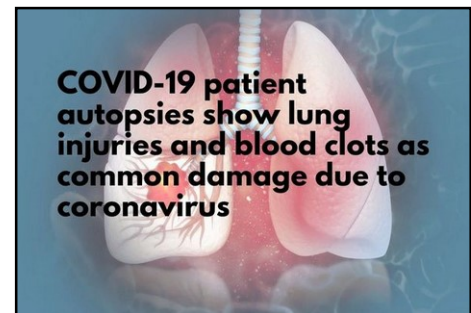
According to the study published on Imperial College's website, ten post-mortem examinations performed on COVID-19 patients found that all of them had lung injuries, early signs of lung scarring, and an injury to their kidneys – all as a result of the COVID-19 infection. Nine of these patients also had thrombosis – a blood clot, in at least one major organ – the heart, kidney, or lungs.

Researchers believe that these findings could give way to effective treatments for COVID-19 in order to reduce the risk of death due to the infection. For instance, the use of blood thinners to prevent blood clots from developing could help. Researchers also believe that such insight into the complications due to the disease could help experts find better ways to monitor and treat the illness.

The study was published in The Lancet Microbe. It was led by researchers at the Imperial College, London, and the Imperial College Healthcare NHS Trust. While the study only examined ten patients, it is still the largest study to be conducted as post-mortem examinations of COVID-19 patients in England.

Dr Michael Osborn, Honorary Clinical Senior Lecturer at Imperial College London, Consultant Pathologist at Imperial College Healthcare NHS Trust and co-author of the study, said:

"COVID-19 is a new disease and we have only had limited opportunities to comprehensively analyse tissues from patients at autopsy, to better understand what caused a patient's illness and death for research purposes. Our study is the first of its kind in the country to support existing theories from researchers and doctors on the wards that lung injuries, thrombosis and immune cell depletion are the most prominent features in severe cases of COVID-19. In the patients we looked



COVID-19 patient autopsies show lung injuries and blood clots as common damage due to coronavirus | Photo Credit: iStock Images

at, we also saw evidence of kidney injuries and in some cases, pancreatitis and these with our other findings will help clinicians develop new strategies to manage patients."

"Autopsy based analysis of COVID-19 for research is vital to learn more of this disease as the pandemic develops. We are extremely grateful to those who consented to this research and appreciate the advancement of medical science their generosity will bring.

As a result of our work, we have worked with colleagues at the Royal College of Pathologists to produce national guidelines for autopsies in COVID-19 patients and in anticipation of a possible second wave of cases we have put systems in place to rapidly facilitate further studies in the future and so further our understanding on the nature and cause of the disease, which we hope would lead to more effective treatments and fewer deaths."

<https://www.timesnownews.com/health/article/covid-19-patient-autopsies-show-lung-injuries-and-blood-clots-as-common-damage-due-to-coronavirus/641447>

ThePrint

Sun, 23 Aug 2020

Severity of respiratory illness predicts early death of Covid patient, not comorbidity — study

The IJMR study shows that the severity of respiratory illness, blood parameters and lactate levels predicted early death of Covid-19 patients within 24 hours

By Himani Chandna

New Delhi: Severity of respiratory illness and parameters of blood predict the early death of Covid-19 patients rather than age or presence of comorbidity, found a study published by the IJMR (Indian Journal of Medical Research).

The study, titled 'Epidemiological and Clinical Characteristics & Early Outcome of Covid-19 patients in a Tertiary Care Teaching Hospital in India: A Preliminary Analysis', has been written by 13 authors working in the Department of Anesthesiology, Pain Medicine and Critical Care of All India Institute of Medical Sciences (AIIMS), Delhi.

In the study, all adult patients admitted to the screening intensive care unit (ICU) of AIIMS who fulfilled the WHO case definition of Covid-19 and confirmed to have the disease using reverse transcription-polymerase chain reaction (RT-PCR) test were included.

Published on 18 August, the study found that nearly half of the patients were presented with "severe and critical disease" and they required "high-flow nasal oxygen or invasive mechanical ventilation at admission".

However, the severity of their respiratory illness, haematological parameters (related to blood) and lactate rather than age or presence of comorbidity predicted early death within 24 hours, the study stated.

The parameter of lactate shows the disruption in the person's acid-base (pH) balance caused by an inadequate amount of oxygen in cells and tissues. The higher level of lactate indicates that organs are not functioning properly.

How the study was conducted?

The study was conducted on 235 patients, with 68 per cent being male.

The most common symptoms, according to the study, were fever (68.1 per cent), cough (59.6 per cent) and shortness of breath (71.9 per cent). Hypertension (28.1 per cent) and diabetes mellitus (23.3 per cent) were the most common associated comorbid illnesses.

"The 24 hours ICU mortality was 8.5 per cent, and non-survivors had higher respiratory rate and lower baseline oxyhaemoglobin saturation at presentation and higher baseline serum lactate, total

leucocyte count, absolute neutrophil count, prothrombin time and INR compared to survivors,” said the study.

Prothrombin time and INR are the tests that measure how much time it takes for a patient’s blood to clot whereas higher total leucocyte count and absolute neutrophil count show presence of infection in the body.

Oxyhemoglobin is a “measure of how much of the oxygen-carrying capacity due to hemoglobin is being utilised”.

<https://theprint.in/health/severity-of-respiratory-illness-predicts-early-death-of-covid-patient-not-comorbidity-study/487222/>

THE TIMES OF INDIA

Mon, 24 Aug 2020

If everything goes well India would get Covid-19 vaccine by year-end: Harsh Vardhan

New Delhi: Union health minister Dr Harsh Vardhan has said that if everything goes well, India would get a vaccine against the novel coronavirus by the end of this year.

Three Covid-19 vaccine candidates, including two indigenous ones, are in different phases of development in India.

The phase-one human clinical trials of the two indigenous Covid-19 vaccine candidates, one developed by Bharat Biotech in collaboration with ICMR and the other by Zydus Cadila Ltd, have been completed and the trials have moved to phase-two, ICMR director General Dr Balram Bhargava had said recently.

The Serum Institute of India, which has partnered with AstraZeneca for manufacturing the Covid-19 vaccine candidate developed by the University of Oxford has been permitted for conducting its phase two and three human clinical trials in India. It is likely to start the trials next week.

In a tweet in Hindi, Vardhan said on Saturday, "I hope that if everything goes well, India will get a coronavirus vaccine by the end of this year."

Meanwhile, the apex health research body, ICMR, is in the process of developing an online vaccine portal which will provide information related to Covid-19 vaccine development in India and abroad, with the majority of the updates in several regional languages in addition to English.

The aim of creating the website is to provide all information and updates relating to the Covid-19 vaccine development on one platform as all the information in this regard is scattered as of now, Samiran Panda, Head of Epidemiology and Communicable Diseases at ICMR, told PTI on Saturday.

The idea behind making the updates available in regional languages is to make sure that every citizen is able to access the information. The portal is likely to be functional by next week, Panda said.

With a single-day spike of 69,239 infections, India's Covid-19 caseload mounted to 30,44,940 on Sunday, while the death toll climbed to 56,706 with 912 fatalities being reported in 24 hours, the data updated at 8 am showed.

<https://timesofindia.indiatimes.com/india/if-everything-goes-well-india-would-get-covid-19-vaccine-by-year-end-harsh-varadhan/articleshow/77703480.cms>



China approves emergency usage of Covid-19 vaccines: Report

An emergency use authorisation, which is based on Chinese vaccine management law, allows unapproved vaccine candidates to be used among people who are at high risk of getting infected on a limited period

Beijing: China has authorised emergency usage of Covid-19 vaccines developed by some select domestic companies, a Chinese health official has said.

An emergency use authorisation, which is based on Chinese vaccine management law, allows unapproved vaccine candidates to be used among people who are at high risk of getting infected on a limited period.

“We’ve drawn up a series of plan packages, including medical consent forms, side-effects monitoring plans, rescuing plans, compensation plans, to make sure that the emergency use is well regulated and monitored,” Zheng Zhongwei, head of China’s coronavirus vaccine development task force, told state-run CCTV on Saturday.

One month has passed since China officially launched the urgent use of Covid-19 vaccines on July 22, while the vaccines were going through clinical trials, Zheng said.

Recipients who got their first dose since then revealed they had few adverse reactions and none reported a fever. According to China’s Law on Vaccine Management, when a particularly severe public health emergency occurs, vaccines in clinical trials can be used in a limited scope to protect medical and epidemic prevention personnel, border officers and other people working in stable city operations, Zheng said.

State-run Global Times has previously reported that employees of state-owned enterprises (SOEs) preparing to go abroad and frontline medics have been offered two choices of domestic inactivated vaccine candidates developed by Sinopharm for urgent use.

On Thursday and Friday, Sinopharm signed cooperation agreements on phase III clinical trials of inactivated vaccines with Peru, Morocco and Argentina.

Zheng noted that for the next step of preventing a possible outbreak this autumn and winter, vaccines’ availability will be extended to people working in food markets, transport systems and services industries.

The number of people being vaccinated on an urgent basis may reach hundreds of thousands across China, considering that personnel in wider sectors are being offered free injections, said Tao Lina, a Shanghai-based immunology expert, on Sunday.

“But it’s difficult to give an accurate figure since the Chinese military has begun mass vaccinations but has not released details,” Tao said.

Wu, an employee of a state-owned company handling overseas construction projects along the Belt and Road Initiative (BRI) in Asian and African countries, told the Global Times on Sunday that all staff in her firm have been offered inactivated vaccine injections on a voluntary basis for free. Wu, who took the vaccine on August 7 along with many of her colleagues, said she did not experience any adverse reactions, similar to everyone else in her group.

“My colleagues and I felt only a little dizzy on the afternoon of the vaccination, but we got over it pretty quickly. There was no local redness, swelling or pain, and we did not hear of anyone reporting a fever,” said Wu, who will take her second dose on day 28 after the first shot. “People seem to be relaxed over the vaccination as most of us feel confident in domestically developed vaccines,” she said..

One of Sinopharm’s inactivated Covid-19 vaccines on August 13 was revealed to have had a low rate of adverse reactions for patients in phase I and II clinical trials, while also demonstrating

immunogenicity results. The inactivated vaccine will be effective against all detected strains of the virus at least as of mid-July, with lower chances and degrees of adverse reactions than same-type vaccine candidates under research, Yang Xiaoming, head of Sinopharm, told the Global Times in an earlier interview.

Yang said on Saturday that more than 20,000 people in the United Arab Emirates had taken inactivated Covid-19 vaccines developed by Sinopharm in phase III clinical trials, which have shown a high level of safety. The efficacy of the vaccine is under observation.

“The phase III trial in the UAE has had no reported cases of side effects so far,” Yang said, adding that “volunteers joined faster than expected and the vaccine was well worth the wait”.

<https://www.hindustantimes.com/world-news/china-approves-emergency-usage-of-covid-19-vaccines-report/story-E35RNen9piFFLt2R5EYo3H.html>

