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COVIDoscope

Part-II

A journal scan on COVID research done by
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PPE- A hindrance to Therapeutic Alliance

Sasidharan S, Singh H. PPE - A Hindrance to Therapeutic Alliance. Turk J Anaesthesiol Reanim 2021; 49(2)

The focus of this article is to highlight the communication barrier created by personal protection equipment (PPE) worn by healthcare workers. It specifically dwells on the challenges posed in establishing patient rapport, performing a mental status examination and lack of non-verbal communication. The article highlights the need to devise effective strategies to mitigate this problem.

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COVID-19: Neuropsychiatric manifestations and psychopharmacology

Dhillon HS, **Sasidharan S**, Dhillon GK, Singh V, Babitha M. Ann Indian Psychiatry 2020;4:226-9.

The authors have outlined neuropsychiatric manifestations of COVID19. The overall prevalence is reported to be 22.5%. Headache, sleep disturbance, encephalopathy, loss of taste and smell, stroke and TIA were the most common neurological symptoms reported, while anxiety, mood disorders, and suicidal ideation were the most common psychiatric symptoms reported. The purported mechanisms include direct viral entry into the CNS or hematogenous spread leading to acute meningitis or encephalitis. It is also purported that effects on the hypothalamo-pituitary-adrenal axis contribute to neuropsychiatric symptoms.

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Diabetes Mellitus and Hypertension Increase Risk of Death in Novel Corona Virus Patients Irrespective of Age: a Prospective Observational Study of Co-morbidities and COVID-19 from India.

Lt Col Krishna Kumar in Gupta, A., Nayan, N., Nair, R. et al. SN Compr. Clin. Med. 3, 937–944 (2021).

This was a prospective observational study conducted at a Tertiary Care hospital in Eastern India from March 2020 to August 2020. Consecutive patients with RT-PCR positive for COVID-19 were enrolled. Their baseline clinical status, vital parameters, inflammatory markers and co-morbidities were recorded. Data was analyzed using the appropriate statistical methods. A total of 710 cases were recruited. The mean age was 48.4 ± 16.4 years. 74.6% of patients were males. 50 patients died amongst these cases. Hypertension, tachycardia, tachypnoea, and fever at admission were significantly associated with mortality. Of the co-morbidities, Diabetes Mellitus and Hypertension were significantly associated with mortality (OR 5.9 and 4.2, respectively).

Clinical Triaging in Cough Clinic Alleviates COVID-19 Overload in Emergency Department in India.

Nayan, N., Kumar, M.K., Nair, R.K. et al. SN Compr. Clin. Med. 3, 22–27 (2021).

This retrospective cross-sectional observational study included all symptomatic patients referred to a designated 'cough clinic' of a tertiary hospital. The aim of this study was to evaluate the pre-test history and symptom-based predictive accuracy of primary care physicians in identifying potentially positive cases. Patients reporting to this clinic were screened using history and clinical examination, and a judgement regarding the pre-test probability of the patient suffering from COVID-19 was made, which was telephonically informed to the physician in-charge of the clinic. Patients were then divided into two groups: those deemed to be stable, or at low risk of COVID-19 infection; and those who were unstable or at high risk of COVID-19 infection. Samples for RT-PCR were collected from both these groups. The low-risk group was then sent home, while the high-risk group was detained in the facility. If any patient from the low-risk group tested positive, he/she was called back to the hospital and admitted. The pre-test probability assigned by the screening physician was then compared with the results obtained on RT-PCR testing. Fever, cough, shortness of breath and body aches were the dominant symptoms.

A total of 511 patients were screened during the study period (1 month). The overall positivity rate was 54.21% (n=277). Apart from fever, anosmia and dyspnoea were the most common symptoms amongst the COVID positive patients. The sensitivity and specificity of the screening physicians was 74.7% and 58.12%, respectively, with positive predictive value of 67.87% and negative predictive value of 66.02%. The authors have stressed on the role of training and re-training of the screening physicians, and emphasize that this can be refined further and used in low and middle income countries.

Efficacy of industrial-grade infrared noncontact temperature recording device for fever screening during coronavirus pandemic.

Kaur KB, Singhal A, Yadav AK, Mangal V, Jain R, Kumar S. CHRISMED J Health Res 2020;7:256-60.

The investigators looked at the practice of using industrial-grade non-contact thermometers (IGNCT) used to screen incoming patients in the hospital. Considering that the stated accuracy of IGCNTs is 1-1.5C, and that of the medical IR thermometers is 0.1C, they decided to evaluate the accuracy of the IGNCT against standard thermometers. Three IGNCTs from the same manufacturer were evaluated against a single digital medical thermometer. The digital thermometer was used by contacting the skin of the armpit, while the IGNCT thermometer was used at 3cm from the forehead. A single observer measured temperature using all the four devices in random order on every patient enrolled. A total of 117 patients were enrolled (against a calculated sample size of 83). The mean temperature reading using the contact thermometer was 2-3F higher than the IGNCT. Although all three IGNCTs were from the same manufacturer, the readings were different. The strength of correlation between the IGNCTs and the digital thermometer was moderate. The overall conclusion of the authors was that IGCNTs had a limited role in temperature monitoring of patients in the COVID-19 pandemic.

Handling of face masks by health-care workers during the coronavirus pandemic scare: An eye-opener.

Mangal V, Singhal A, Yadav AK, Kaur KB, Jain R. CHRISMED J Health Res 2020; 7:261-4.

The aim of the study was to evaluate the knowledge, attitudes, and practices of healthcare workers (HCWs) in the handling of facemasks during the coronavirus outbreak. A prospective observational study including doctors and paramedical staff working at a tertiary care hospital. All HCWs wearing masks were invited to participate in

the study, which was administered as a pre-reviewed pre-tested questionnaire comprising of 11 questions. The average time taken per question was 5.2 ± 2.3 seconds. A total of 130 HCWs were approached, out of which 119 consented to participating in the study. Both three-ply surgical masks and cloth masks were used by the HCWs. 56.3% (n=67) of the participants were found to be not changing the mask daily. Only 57.14% (n=68) of the respondents had adequate knowledge of standard waste disposal practices; 75% of doctors were disposing off the mask properly, while only 45% of paramedical staff were following proper disposal practices. Nearly 91% (n=108) participants reused their masks in a single day. It was also found that HCWs had not received any formal training on handling and use of masks. The authors highlight the need for greater adoption of simulators and other virtual means of education considering medical education being neglected during the COVID-19 pandemic due to lack of an adequate patient pool. They emphasize that this change must be adopted sooner than later.

Walk-in sampling kiosks for COVID-19 testing: A boon or bane.

Mangal V, **Kaur KB**. *J Acute Dis* 2021; 10(1) (Letter to editor)

The authors here elaborate on the utility of walk-in sampling kiosks which have been utilized for sampling patients in the COVID-19 pandemic. The article weighs in the advantages of these kiosks against the

formal training on handling and use of masks. The study highlights an especially important knowledge gap, which must be addressed urgently to prevent transmission of infection amongst HCWs.

Simulation: Will it be a new patient in the COVID era?

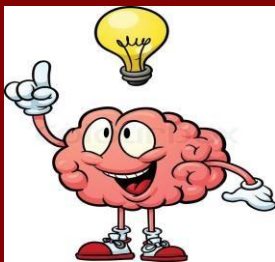
Kaur KB, Dwivedi D, Mangal V. *J Mar Med Soc* 0;0:0. (Letter to editor)

The authors highlight the need for greater adoption of simulators and other visual means of education considering medical education being neglected during the COVID-19 pandemic due to lack of an adequate patient pool. They emphasize that this change must be adopted sooner than later.

Contemplating and innovating the arterial line placement in COVID times.

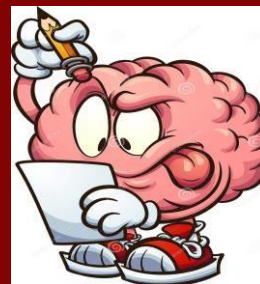
Kaur KB, Kalshetty K, Mangal V, Paul D, Singh S. *Saudi J Anaesth* 2021;15:231-2. (Letter to editor)

This letter focuses on an innovative approach to the hypercoagulability encountered in COVID19 while cannulating the radial artery. The authors noted accelerated clotting in the arterial cannula while inserting it in a patient with COVID-19 leading to multiple cannulation failures. The problem was solved by flushing the cannula with heparin and then re-inserting it. The approach was a success.



Trivia

According to a well-known medical cliché, every baby born in a hospital is first viewed through the eyes of her, **Virginia Apgar**. She was accepted as a resident in the surgical team of the Columbia Presbyterian Hospital where Allen Whipple discouraged her to pursue a career as a surgeon and advised her to master Anaesthesia. But the title of anaesthesiologist as such did not exist at the time. She had training under Dr Ralph Waters for six months and after coming back she was appointed Head (and the only member) of the Department of Anaesthesia at the Columbia Presbyterian Hospital. She single-handedly founded a Department of Anaesthesia, worthy of the name, by 1949. She advanced to full professor (the first woman to do so) and moved into obstetric anesthesia. One day, a medical student rotating on anaesthesia remarked at breakfast about the need to evaluate new-borns. According to someone who was present, Apgar said, "That's easy, you'd do it like this." She grabbed the nearest piece of paper and scribbled down the 5 points and then dashed off to try it out. This ended up being her biggest contribution to medical science; **The Apgar score**. In 1961, Victoria Apgar received a letter from Dr. Joseph Butterfield where one of his residents had come up with the idea of connecting the five letters of APGAR to the five points. Victoria Apgar loved the idea and adopted the acronym immediately. A lesser-known fact about her was that she was also a certified pilot and an accomplished violinist. She had various other interests such as stamp collecting and gardening (she bred a new cultivar of orchid-Apgar Orchid). After a progressive liver condition, Virginia Apgar died on August 7th, 1974 at the age of 65 years in the very same hospital where she had developed her famous score.



Twister

1. My name is familiar to anyone who has ever cared for young children. I was a pediatric nephrologist, who wrote the exam papers for the first formal exams in this specialty. In my very first academic tenure in Indiana University in 1957, along with a colleague, I published a paper, which holds good till date and gave birth to an eponymous formula. Who am I?
2. This instrument was a particular favorite of a pioneering pediatric anaesthesiologist, Dr. Robert Smith. (Smith's Anesthesia for Infants and Children). It was a mainstay of pediatric monitoring. The reason being that a certain inhaled anaesthetic which was suited for pediatric induction in those days would require this instrument to ensure safety. With the rise of alternative agents, the use for this instrument faded away. Name the instrument and the agent.



1. Dr. Robert Holliday
2. Precordial Stethoscope, Halothane

KALEIDOSCOPE

Surg Capt Rahul Yadav

Outcomes and risk factors for cardiovascular events in hospitalized COVID-19 patients

Xu Q, Samanapally H, Nathala P, et al
Journal of Cardiothoracic and Vascular Anesthesia; DOI:
10.1053/j.jvca.2021.03.035

The authors aimed at determining outcomes and risk factors of cardiovascular events in a metropolitan COVID-19 database. In addition, they performed a subgroup analysis in African American populations to assess if outcomes and risk factors are influenced by race. In this population-based study conducted in Louisville, KY, USA, they assessed 700 adult inpatients hospitalized with COVID-19. This cohort comprised 126 patients (18%) with cardiovascular events and 574 patients without cardiovascular events. Findings suggest the prevalence of cardiovascular events and their correlation with worse outcomes in hospitalized patients with COVID-19. After propensity score matching analysis, they identified similar outcomes of cardiovascular events in African American and white COVID-19 patients. There were common and unique risk factors for cardiovascular events in African American COVID-19 patients when compared with white patients. In COVID-19 patients, the occurrence of cardiovascular events was observed in marked correlation with male gender, race, lower SaO₂/FiO₂, higher serum potassium, lower serum albumin, and number of cardiovascular comorbidities. For African American COVID-19 patients, marked correlation of lower serum albumin and neoplastic/immunocompromised diseases with cardiovascular events was observed. In white patients, SaO₂/FiO₂ ratio and cardiovascular comorbidity count were significantly linked with cardiovascular events.

Predictors and outcomes of coronary artery bypass grafting: A systematic and untargeted analysis of > 120,000 individuals and > 1,300 disease traits

Aittokallio J, Kauko A, Palmu J, et al
Journal of Cardiothoracic and Vascular Anesthesia; DOI:
10.1053/j.jvca.2021.03.039

Researchers investigated the correlates and outcomes of coronary artery bypass grafting (CABG) by performing an untargeted data-driven analysis. From nationwide healthcare registers, information was retrieved on up to 1,327 disease traits preceding and following CABG. They assessed a patient sample of 127,911 people including 3,784 CABG patients. The correlation was assessed between 1) traits and incident CABG and 2) CABG and incident traits using multivariable-adjusted Cox models. CABG patients in the fourth quartile of a risk score based on the top predictors of mortality had 12.2-fold risk of dying compared with those in the first quartile. The findings were suggestive of the fact that known CVD risk factors exhibit the strongest correlation with incident CABG. However, there was correlation of CABG with raised risk of several unexpected non-CVD traits, including anemia, gastrointestinal disorders, acute renal failure, septicemia, lung cancer, Alzheimer's disease, and COPD.

Presepsin values predict septic acute kidney injury, acute respiratory distress syndrome, disseminated intravascular coagulation, and shock

Shimoyama Y, Umegaki O, Kadono N, et al
Shock; DOI:
10.1097/SHK.0000000000001664

This study aimed to determine whether presepsin is a predictor of septic acute kidney injury (AKI), acute respiratory distress syndrome (ARDS), disseminated

intravascular coagulation (DIC), and shock. A total of 83 adult patients diagnosed with sepsis were prospectively examined. Presepsin values were measured immediately after intensive care unit (ICU) admission and on Days 2, 3, and 5 after ICU admission. Findings revealed that septic AKI, ARDS, as well as DIC, all were predicted by presepsin. An improved specificity for predicting septic ARDS was achieved by integrating presepsin values with Glasgow Prognostic Score vis-a-vis using baseline presepsin values alone.

The efficacy of intravenous vitamin C in critically ill patients: A meta-analysis of randomized controlled trials

Xing X, Xu M, Yang L, et al
Clinical Nutrition; DOI: 10.1016/j.clnu.2021.03.007

This researchers undertook this meta-analysis to evaluate the efficacy of intravenous vitamin C in critically ill patients. Relevant high-quality randomized controlled trials (RCTs) were selected from PubMed, EMBASE and the Cochrane Library. This meta-analysis involved 18 RCTs with 2,001 patients (1,005 with vitamin C treatment and 996 control treatment). According to findings, shortening of intensive care unit (ICU) length of stay (LOS) and hospital LOS may be achieved by intravenous vitamin C administration. Mortality and organ failure, however, remained unaffected by its use.

Clinical performance of lung ultrasound in predicting ARDS morphology

Costamagna A, Pivetta E, Goffi A, et al
Annals of Intensive Care; DOI: 10.1186/s13613-021-00837-1

The authors compared lung ultrasound (LUS) vs the gold standard computed tomography for diagnostic performance in detecting acute respiratory distress syndrome (ARDS) morphology (focal vs non-focal). This study included 47 patients experiencing ARDS (25 training set and 22 validation set) who were mechanically ventilated and were undergoing lung computed tomography and ultrasound. Researchers computed total and regional LUS score as the sum of the four ventral (LUS_V), intermediate (LUS_I) or dorsal (LUS_D) fields. LUS_{TOT} (Total Lung Ultrasound Score), LUS_V and LUS_I but not LUS_D score were significantly lower in focal than in non-focal ARDS morphologies. Validation set corroborated high predictive value of an LUS_V score ≥ 3 for non-

focal ARDS morphology, yielding a sensitivity of 94% and specificity of 100%. Overall, LUS offered a valuable performance in differentiating ARDS morphology.

Lung-protective mechanical ventilation for patients undergoing abdominal laparoscopic surgeries: A randomized controlled trial

Nguyen TK, Nguyen VL, Nguyen TG, et al
BMC Anesthesiology; DOI: 10.1186/s12871-021-01318-5

In laparoscopic surgeries, pneumoperitoneum and Trendelenburg position may contribute to postoperative pulmonary dysfunction. Researchers herein conducted a randomized controlled clinical trial in order to examine if lung-protective mechanical ventilation (LPV) could improve intraoperative oxygenation function, pulmonary mechanics and early postoperative atelectasis in laparoscopic surgeries. They randomly assigned a total of 62 patients scheduled for elective abdominal laparoscopic surgeries with an expected duration of greater than 2 h to receive either lung-protective ventilation (LPV) with a tidal volume (V_t) of 7 ml/kg ideal body weight (IBW), 10 cm H_2O positive end-expiratory pressure (PEEP) combined with regular recruitment maneuvers (RMs) or conventional ventilation (CV) with a V_t of 10 ml/kg IBW, 0 cm H_2O in PEEP and no RMs. A significant improvement was observed in intraoperative pulmonary oxygenation function and pulmonary compliance in patients managed with LPV. However, LPV led to no amelioration in early postoperative atelectasis and oxygenation function on the first day after surgery.

Effect of low-concentration carbohydrate on patient-centered quality of recovery in patients undergoing thyroidectomy: A prospective randomized trial

Wang S, Gao PF, Guo X, et al
BMC Anesthesiology; DOI: 10.1186/s12871-021-01323-8

Among patients undergoing thyroidectomy, this study was conducted to assess the impact of preoperative oral low-concentration carbohydrate on patient-centered quality of recovery. The researchers used Quality of Recovery-15 questionnaire to compare the quality of recovery at 1d before surgery (T0), 24h, 48h, 72h after surgery (T1, T2, T3), and perioperative blood glucose was recorded. Participants were 120 patients who were

randomly assigned to oral intake of 300 ml carbohydrate solution (CH group) or 300 ml pure water (PW group) 2 h prior to surgery or fasting for 8 h prior to surgery (F group). The authors observed a reduction in postoperative hyperglycemia incidence as well as an improvement in patient-centered quality of recovery in low-concentration carbohydrate solution (CH) group at the early stage (T1) during the postoperative period.

Supplemental intraoperative oxygen and long-term mortality: Subanalysis of a multiple crossover cluster trial

Jiang Q, Kurz A, Zhang X, et al
Anesthesiology; DOI:
10.1097/ALN.0000000000003694

The investigators went about ascertaining whether supplemental oxygen (80% vs 30%) elevates the hazard for long-term mortality, in this post hoc study of a large multiple crossover cluster trial wherein greater than 5,000 colorectal surgeries on 4,088 adults were assigned to receive either 30% or 80% inspired oxygen during general anesthesia. They analyzed 3,471 qualifying colorectal surgeries conducted in 2,801 patients. The incidence of death after a median of 3 yr of follow-up was 13% with 80% oxygen and 14% with 30% oxygen. Findings revealed that no increase in postoperative mortality was brought about by supplemental oxygen use.

Perioperative risk factors for survival outcomes in elective colorectal cancer surgery: A retrospective cohort study

Liu XX, Su J, He M, et al
BMC Gastroenterology; DOI: 10.1186/s12876-021-01757-x

Researchers undertook this retrospective single-center cohort study to determine the role of perioperative factors impacting long-term survival in patients presenting for colorectal cancer (CRC) surgery. They analyzed clinical data from patients who underwent elective laparoscopic resection for CRC from January 2014 to December 2015. There were 234 eligible cases. In this study, the identified independent risk factors influencing CRC prognosis were: TNM stage, lymphovascular invasion, isoflurane, and Klintrup–Makinen inflammatory cell infiltration grade (low-grade inflammation). In CRC patients undergoing resection, improved survival may be observed in

relation to sevoflurane and high-grade inflammation.

The efficacy and safety of glucocorticoid on periarticular infiltration analgesia in total knee arthroplasty: A systematic review and meta-analysis of randomized controlled trials

Li Z, Li Z, Cheng K, et al
Journal of Arthroplasty; DOI:
10.1016/j.arth.2021.03.056

By performing this systematic review and meta-analysis, the authors assessed impact as well as safety of multimodal cocktail protocols applied with or without glucocorticoids on periarticular infiltration analgesia (PIA) in patients undergoing total knee arthroplasty (TKA). PubMed, Medline, Embase, and Cochrane Library databases were explored to identify randomized controlled trials on glucocorticoids as a component of the cocktail protocol employed in PIA for TKA patients. Findings demonstrated effectiveness of glucocorticoid supplementation in PIA; without any increase in complications or side effects for patients undergoing either unilateral or bilateral TKA. Triamcinolone acetonid could be recommended in multimodal cocktail protocols for glucocorticoid supplementation.

Continuous pectoral nerve block compared with continuous thoracic paravertebral block and intravenous opioid analgesia for the postoperative analgesic efficacy in patients undergoing modified radical mastectomy: A prospective randomized trial

Abu Elyazed MM
Clinical Journal of Pain; DOI:
10.1097/AJP.0000000000000932

The authors evaluated the analgesic efficacy of continuous pectoral nerve block (PEC) in comparison with that of the continuous thoracic paravertebral block (TPVB) and the intravenous opioid analgesia in patients scheduled for modified radical mastectomy (MRM). 90 female patients aged 20 to 70 years, American Society of Anesthesiologists I to III, scheduled for unilateral MRM were enrolled in the study. The researchers observed that continuous PEC and continuous TPVB resulted in decrease in the postoperative morphine use as compared to the intravenous opioid analgesia among patients undergoing MRM; with greater decrease in TPVB and with no increased adverse impacts.

Pediatric anesthesia severe adverse events leading to anesthetic morbidity and mortality in a tertiary care center in a low- and middle-income country: A 25-year audit

Khoso N, Ghaffar WB, Abassi S, et al
Anesthesia & Analgesia; DOI:
10.1213/ANE.0000000000000516

As assessment of adverse events, including morbidity and mortality (M&M), aids in the detection of subgroups of children at risk as well as in altering clinical practice, and since data available from low- and middle-income countries is scanty, therefore, the authors undertook this study to estimate the proportion of children with various severe adverse events in the perioperative period extending to 48 hours as well as describe the clinical situations and reasons for those events. For this purpose, the M&M database of the Department of Anesthesiology between 1992 and 2016 was examined. Findings revealed an uncommon occurrence of adverse events, and the most frequent (33%) were respiratory complications. A higher risk for perioperative cardiac arrest was noted in infants, specifically those with congenital heart disease, but this link was not tested statistically. Death within 48 hours occurred in 28% of the patients who experienced adverse events. A reduction in perioperative cardiac arrests was reported in relation to increased access to anesthesia drugs and improvements in anesthesia practice.

Repeated measures correlation between functional capacity, pulmonary function and chest expansion in children undergoing open abdominal surgery: Secondary analysis from randomized clinical trial

Sharma N, Sree BS, Aranha VP, et al
Journal of Pediatric Surgery; DOI:
10.1016/j.jpedsurg.2020.12.006

Given that six minute walk test (6MWT), Spirometry and chest expansion are employed regularly to determine the status of functional capacity as well as pulmonary function pre as well as post operatively, researchers herein investigated if Functional capacity Ten meter walk test (10mWT), Nine stair climbing test (9SCT), pulmonary function [Spirometry parameters (FVC, FEV1, FEV1/FVC ratio and PEFr)] and chest expansion have correlation among children undergoing open abdominal surgery. 18 subjects, aged 5–17 years, scheduled for open abdominal surgery were enrolled in the study. Findings showed the

presence of a moderate correlation between pulmonary function and chest expansion, but functional capacity correlated poorly with pulmonary function and chest expansion. Therefore, individual importance of all the outcome measures (6MWT, 10Mwt, 9SCT, Spirometry, and Chest expansion) was suggested.

Rapid and safe removal of foreign bodies in the upper esophagus in children using an optimized Miller size 3 video laryngoscope blade

Kaufmann J, Grozeva B, Laschat M, et al
Paediatric Anaesthesia; DOI:
10.1111/pan.14158

Researchers conducted this prospective observational study-to-study foreign body visualization and removal from the upper esophagus in children using a new optimized Miller size 3-blade video laryngoscope. This investigation was conducted in three pediatric hospitals. All children with a foreign body lodged into the upper esophagus were eligible for inclusion during the observational period from January 2019 to October 2020, and 22 cases were included in the study. There were no problems and the success rate was 100%. When foreign bodies are found in the upper part of the esophagus, the new Miller size 3 video laryngoscopes allows for fast, painless, and reliable extraction of the same. As early removal of esophageal foreign bodies, especially with button batteries, prevents life-threatening complications, this technique is suggested as the first choice of treatment.

Arrivals & Departures

Major General Rashmi Datta, VSM hung up her uniform after completing 36 years of illustrious service on 30th April 2021. She always had been an inspiration, guide and a pillar of support to the fraternity. The family of Defence Anaesthesiologists wishes her and her family a very happy post retirement life.

We would also like to pay our regards and bid farewell to **Surg Capt Milind Dharmamer** who completed distinguished 32 years of service on 31st May 2021. We wish him a wonderful second innings in life.