



PALERMO
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1ª Giornata delle Scuole di Specializzazione Restate al **Di.Chir.On.S.**

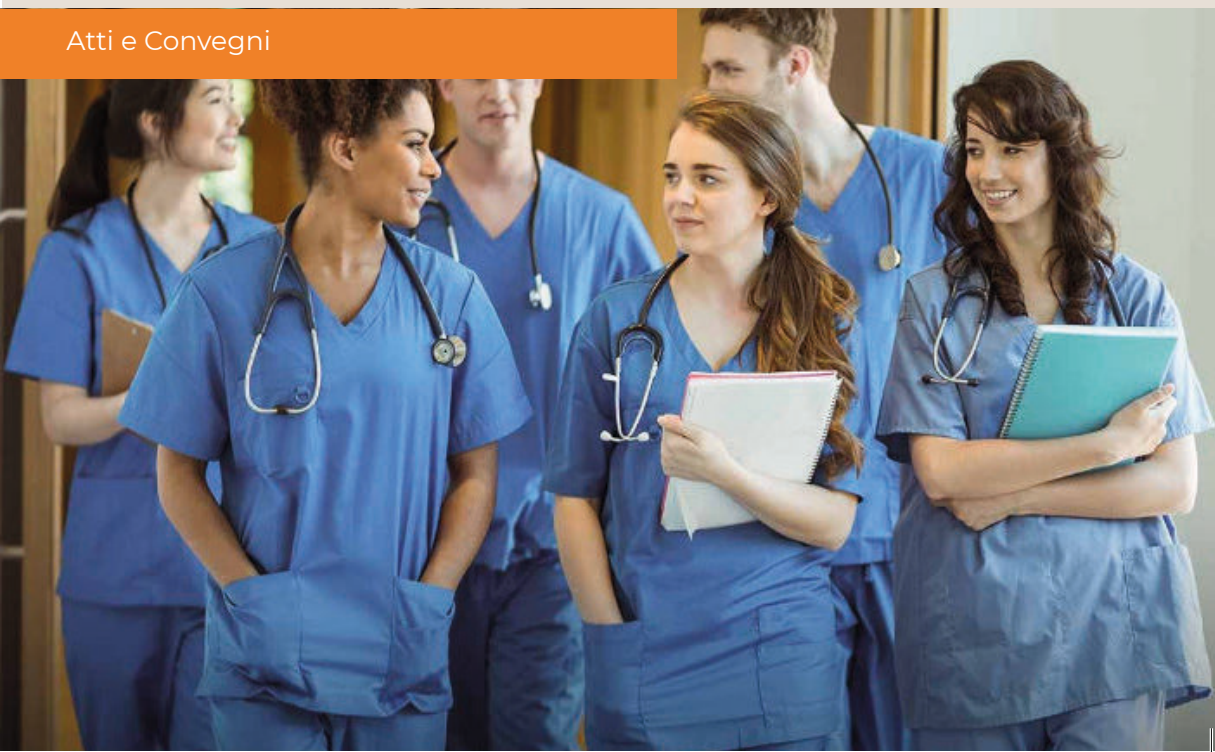
PRINCIPALI LINEE DI RICERCA DELLE
SCUOLE DI SPECIALIZZAZIONE

A CURA DI
OLGA DI FEDE
EUGENIO FIORENTINO

DIPARTIMENTO DI
DISCIPLINE CHIRURGICHE, ONCOLOGICHE E
STOMATOLOGICHE

DIRETTORE
GIUSEPPINA CAMPISI

Atti e Convegni



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ONCOLOGICHE E STOMATOLOGICHE

Università degli Studi di Palermo

Palermo · 21 giugno 2019

A cura di
Olga Di Fede
Eugenio Fiorentino

Università degli Studi di Palermo
Aula "Maurizio Ascoli"
A.O.U.P. "Paolo Giaccone"



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Atti e convegni

Prima giornata delle Scuole di Specializzazione

"R-estate" al DiChirOnS

*Dipartimento di Discipline Chirurgiche, Oncologiche e Stomatologiche
Palermo, 21 giugno 2019*

Comitato organizzatore: Olga Di Fede, Eugenio Fiorentino

Comitato scientifico: Viviana Bazan, Adriana Cordova, Antonino Giarratano, Giovanna Giuliana, Gaspare Gulotta, Giulia Letizia Mauro, Antonino Sanfilippo, Alchiede Simonato

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Indice

Prefazione	7
Programma	11
Scuola di Specializzazione in Anestesia, Rianimazione, Terapia Intensiva e del Dolore	15
Scuola di Specializzazione in Chirurgia Generale	23
Scuola di Specializzazione in Chirurgia Plastica, Ricos- truttiva ed Estetica	31
Scuola di Specializzazione in Medicina Fisica e Riabilitativa	41
Scuola di Specializzazione in Odontoiatria Pediatrica	49
Scuola di Specializzazione in Oncologia Medica	57
Scuola di Specializzazione in Ortopedia e Traumatologia	65
Scuola di Specializzazione in Urologia	75

Prefazione

Cari colleghi,

le pagine di questo piccolo volume raccolgono gli estratti relativi alle presentazioni orali che hanno costituito il patrimonio scientifico della prima "Giornata delle Scuole di Specializzazione del DiChirOnS"; esse vogliono testimoniare l'intuizione e la volontà del Dipartimento DiChirOnS (Discipline Chirurgiche Oncologiche e Stomatologiche) di valorizzare i giovani laureati delle Scuole di Specializzazione afferenti al Dipartimento, di creare un momento di aggregazione e di multi-disciplinarietà, di moderna accademia.

Per dare voce e corpo a questo progetto, la Direzione (Giuseppina Campisi), insieme al Delegato della Terza Missione (Olga Di Fede) e il Delegato della Didattica (Eugenio Fiorentino), ha coinvolto, grazie al personale amministrativo, tutte le Scuole di Specializzazione, con l'obiettivo di far conoscere le plurime, interessanti e vivaci linee di ricerca clinica.

L'evento del 21 giugno 2019, svoltosi a Palermo presso l'Aula Maurizio Ascoli dell'AOUP "P. Giaccone", così come la raccolta degli abstract in questo volume, rappresentano il manifesto del rinnovamento della recente riforma degli obiettivi formativi delle Scuole di Specializzazione in area medica: la ricerca medica rappresenta il cardine stesso non solo della formazione ma della futura professione, perché lo specialista dovrà essere sempre affamato di evidenze e di nuove robuste ricerche, nel rispetto dei pazienti che curerà.

In seno al Dipartimento DiChirOnS sono attive diverse Scuole di Specializzazione, con obiettivi comuni per la missione del Medico ma anche con eterogenei e specifici ambiti di competenza, quali: l'Anestesiologia e rianimazione, la Chirurgia generale, la Chirurgia plastica e ricostruttiva, la Medicina fisica e riabilitativa l'Oncologia medica, l'Ortopedia e traumatologia, l'Urologia, e una scuola dedicata ai laureati in Odontoiatria, quale la specializzazione in Odontoiatria Pediatrica.

Per il completamento dell'assistente in formazione, in qualsiasi ambito di competenza, è indispensabile non soltanto il know how, ma il riconoscimento della necessità del confronto e del superamento delle barriere per valorizzazione l'individuo "specialista", e quindi il suo passaggio nel mondo del lavoro, ma anche per la valorizzazione del rispetto della vita e della dignità del malato con una ricerca sem-

pre più all'avanguardia. Ciò che la giornata del 21 giugno 2019 ha donato a ognuno di noi, docenti e assistenti in formazione, è la convinzione che la nostra attività debba includere sempre più approcci sistemici e interdisciplinari e che sia necessario mantenere elevato il valore della ricerca e dell'etica con forte responsabilità nella propria costante formazione.

Questo volume è una piccola pietra miliare del rinnovamento del DiChirOnS, in seno all'Ateneo, ed è prova dell'aggiornato patto con i nostri assistenti in formazione, linfa vitale del nostro Policlinico e, in prospettiva, della nostra Sanità.

Olga Di Fede
Eugenio Fiorentino
Giuseppina Campisi

Programma



Ore 8,30

SALUTO DELLE AUTORITÀ

Fabrizio Micari, Rettore dell'Università degli Studi di Palermo
Carlo Picco, Direttore Generale dell'AOUP "P. Giaccone"

INTRODUZIONE

Anna Giammanco, Delegato del Rettore per le Scuole di Specializzazione
Walter Mazzucco, Delegato Scuola di Medicina e Chirurgia per le Specializzazioni
Giuseppina Campisi, Direttore del Dipartimento Di.Chir.On.S.

Ore 9,00-11,00 I SESSIONE

PRESIDENTI: G. Giuliana, G. Gulotta, A. Russo, A. Sanfilippo.

CONTRIBUTI SCIENTIFICI (7 MIN /CONTRIBUTO- MAX 10 DIAPOSITIVE)

Zelia Milazzo – Specializzando in Anestesia e Rianimazione

Ruolo della ventilazione non invasiva nel paziente con COPD riacutizzata in area d'emergenza

Leo Licari - Specializzando in Chirurgia Generale

L'addome aperto nel trattamento della sepsi intra-addominale: indicazioni, outcome e tecnica chirurgica

Marco Romeo - Specializzando in Chirurgia Plastica, Ricostruttiva ed Estetica

Riabilitazione funzionale della mano nei pazienti spastici

Alessio Cioffi - Specializzando in Ortopedia e Traumatologia

Rigenerazione del nervo sciatico: utilizzo di scaffold tubulare con nanoparticelle su modello murino

Sandro Billeci - Specializzando in Urologia

La valutazione del rischio operatorio nella chirurgia urologica. Confronto tra ASA score e Modified Frailty Index

Gabriella Di Gaetano - Specializzando in Medicina Fisica e Riabilitativa

Linfomi e salute dell'osso: è possibile migliorare la qualità della vita?

Anna Maria Maltese- Specializzando in Odontoiatria Pediatrica

Epidemiologia, prevenzione e controllo delle patologie orali in età evolutiva

Aurelia Guarini - Specializzando in Oncologia Medica

Esiste un ruolo dell'immunoterapia nel NSCLC oncogene-addicted?

Daniele Matta - Specializzando in Chirurgia Plastica, Ricostruttiva ed Estetica

Studio delle capacità rigenerative degli sferoidi di cellule staminali adipose su nuovi scaffold di origine naturale con applicazione al distretto cranio-facciale

Marinella Pugliesi - Specializzando in Anestesia e Rianimazione

Ruolo dei sistemi di feedback nella simulazione della rianimazione cardiopolmonare di qualità

Nicolò Falco - Specializzando in Chirurgia Generale

Protocollo sperimentale sull'utilizzo della tossina botulinica nel trattamento della ragade anale

Emanuele Cammarata - Specializzando in Chirurgia Plastica, Ricostruttiva ed

Estetica Analisi della correlazione tra pattern linfoscintigrafico preoperatorio e probabilità di insorgenza di linfedema degli arti nei pazienti affetti da melanoma

Federica Morello - Specializzando in Ortopedia e Traumatologia

Riparazione della radice posteriore meniscale: comparazione biomeccanica tra menischi umani e porcini

Calogero Guzzardo - Specializzando in Urologia

Ruolo eziopatogenetico degli alfa 1 blockers uroselettivi nelle disfunzioni eiaculatorie nel trattamento dell'IPB

Federica Carità - Specializzando in Medicina Fisica e Riabilitativa

Denosumab: molecola contro il dolore in corso di blocco ormonale nel carcinoma mammario

Ore 11,00 -11,30 BREAK

Ore 11,30-13,30 II SESSIONE

PRESIDENTI: A. Cordova, A. Giarratano, G. Letizia Mauro, V. Serretta

CONTRIBUTI SCIENTIFICI (7 MIN/CONTRIBUTO- MAX 10 DIAPOSITIVE)

Daniele Cusimano - Specializzando in Odontoiatria Pediatrica

Studio del microbiota orale e della dieta come fattori causali delle Black Stains nel paziente pediatrico

Giovanni Misseri - Specializzando in Anestesia e Rianimazione

Infezioni MDR in terapia intensiva. ruolo dei nuovi antibiotici e delle strategie di Antimicrobial Stewardship

Riccardo Di Gregorio - Specializzando in Chirurgia Generale

Comparazione di outcomes metabolici tra pazienti sottoposti a by-pass gastrico e pazienti sottoposti a sleeve gastrectomy

Giulio Vigni - Specializzando in Ortopedia e Traumatologia

Analisi delle concentrazioni di metalli pesanti in soggetti sottoposti ad impianti di osteosintesi o protesi articolari

Marta Rossanese - Specializzando in Urologia

Principi e applicazioni chirurgiche del fissaggio dell'uretra membranosa nel recupero precoce della continenza urinaria dopo prostatectomia radicale robot-assistita

Sofia Cutaia - Specializzando in Oncologia Medica

Applicazione clinica della biopsia liquida per l'identificazione delle mutazioni di reversione BRCA in pazienti con carcinoma ovarico



Simona Lupo - Specializzando in Chirurgia Generale

Chirurgia conservativa ecoguiadata per lesioni palpabili e non palpabili della mammella

Elia Scavo - Specializzando in Chirurgia Plastica, Ricostruttiva ed Estetica

Ricostruzione immediata nei pazienti affetti da melanoma: cost-saving e nostra esperienza

Federica Morello - Specializzando in Ortopedia e Traumatologia

Valutazione biomeccanica del graft nella ricostruzione del legamento crociato anteriore:

4-strands vs 5-strands

Antonio Scalici- Specializzando in Urologia

Cancro della prostata e ipertrofia prostatica benigna: il ruolo dell'infiammazione e della sindrome metabolica

Umberto Tersigni - Specializzando in Odontoiatria Pediatrica

La teleradiografia latero-laterale del cranio come metodo di screening dell'OSA/ OSAS, in pazienti in trattamento ortodontico

Ida De Luca - Specializzando in Oncologia Medica

Studio sull'espressione plasmatica dell'immunocheckpoint pd-1 nei tumori endocrini

CONCLUSIONE E FINE LAVORI

Olga Di Fede, *Delegato alla Terza Missione del Dipartimento Di.Chir.On.S.*

Eugenio Fiorentino, *Delegato alla Didattica del Dipartimento Di.Chir.On.S.*

Scuola di Specializzazione in Anestesia, Rianimazione, Terapia Intensiva e del Dolore

Prof. A. Giarratano

La Scuola di Specializzazione in Anestesia, Rianimazione, Terapia Intensiva e del Dolore ha lo scopo di formare Medici Specialisti nel settore professionale dell'Anestesiologia, della Rianimazione dell'Emergenza Intra ed Extra-Ospedaliera, della Terapia Intensiva e del Dolore. Durante il percorso formativo l'Assistente in Formazione acquisirà e svilupperà le conoscenze teoriche di base e specifiche della disciplina, l'abilità tecnica e l'attitudine necessarie ad affrontare appropriatamente, secondo gli standard nazionali ed europei, le situazioni cliniche connesse: alla Medicina Perioperatoria ed alla gestione dell'Anestesia Generale e Loco-Regionale nelle diverse branche della Chirurgia, in Ostetricia e per le diverse procedure diagnostiche e terapeutiche, anche non chirurgiche; alla Medicina per Intensità di cura, sia per la Terapia Intensiva postoperatoria che in Terapia Intensiva Polivalente e Specialistica; alla Terapia del Dolore, sia acuto che cronico, oltre che in ambito multidisciplinare per le Cure Palliative; alla Medicina dell'Emergenza, intra ed extraospedaliera, ed alla Medicina delle Catastrofi; alla Terapia Iperbarica; alla Tossicologia d'Urgenza. Egli inoltre acquisirà la capacità: di comunicare con chiarezza ed umanità col paziente e con i familiari anche riguardo al consenso informato (non solo nel contesto preoperatorio), al prelievo di organi e tessuti a scopo di trapianto ed al supporto terapeutico sintomatico per i pazienti EOL (End of Life); acquisirà la capacità di interagire positivamente con gli altri specialisti e con le altre figure professionali sanitarie; possederà, competenze in merito all'organizzazione sanitaria ed al governo clinico, conoscendo gli aspetti medico-legali e gestendo in modo appropriato il rischio clinico; svilupperà, infine, anche attraverso esperienze in simulazione, le competenze non tecniche anestesiolgiche (ANTS). Sarà inoltre perseguito l'obiettivo di un costante aggiornamento delle proprie conoscenze attraverso la ricerca e la formazione permanente continua nei diversi ambiti della disciplina.

Il Corso di studi è articolato in 5 anni in cui gli Assistenti in Formazione, grazie ad una rete formativa assistenziale che coinvolge i più grandi ospedali della provincia, avranno l'opportunità di confrontarsi in prima persona, con un rapporto Discente/Tutor di 1:1, con attività di Chirurgia Generale Maggiore in elezione ed in Urgenza/Emergenza, Cardio e Neurochirurgia in elezione ed in Urgenza/Emergenza, Politraumi, Chirurgia, Oncologica di III livello, Trapianti di Organo solido ed Emergenza Extra-Ospedaliera su Ambulanza Gommata e su Eliambulanza.

Ventilatory support in critically ill patient

Anesthesia, Analgesia, Intensive Care and Emergency Medicine

MILAZZO* Z., GREGORETTI C., GIARRATANO A.

Critically ill patients with respiratory failure can present a lung failure caused by alveolar perfusion mismatching and hypoxemia but without hypercapnia, or a pump failure with hypercapnia and respiratory acidosis.

In case of acute exacerbation of chronic obstructive pulmonary disease inducing hypercapnia, reduction of CO₂ level can be achieved with an amelioration of the alveolar ventilation and of ventilation-perfusion mismatching. In these patients WOB may be reduced by resting the respiratory muscles and also counterbalancing intrinsic positive end-expiratory pressure (PEEPi).

NIV is considered the gold standard in the management of patients with exacerbation of COPD and acute hypercapnic respiratory failure. These patients are most likely to be successfully treated with NIV. The addition of NIV to standard medical therapy reduces mortality, intubation rate, and hospital length of stay.

High-flow oxygen therapy is a new method that provides a mixture of heated and humidified air-oxygen at flows up to 60 L / min through a nasal cannula. Compared to traditional oxygen therapy, HFOT ensures the “wash-out” of the anatomical dead space of the upper airways, generates a certain positive expiratory pressure, facilitates the “clearance” of tracheobronchial secretions and reduces inspiratory effort.

This mechanisms could promote the use of HFOT as an alternative to NIV in patients with acute respiratory failure on chronic due to exacerbation of COPD. In fact, HFOT has numerous beneficial effects in COPD patients, such as improved mucociliary clearance, washout of dead space in the upper airways, creation of low positive airway pressure (PEEP effect), reduction of inspiratory resistance and at the same time increased expiratory resistance . HFNT is characterized by a great ease of use, a low degree of invasiveness and, therefore, an excellent level of acceptance by patients.

To date, no study has randomly compared the efficacy of HFNT to noninvasive ventilation and patients with COPD exacerbations.

Therefore we are conducting a randomized clinical trial aiming to assess whether HFOT is equally effective in eliminating carbon dioxide in patients with exacerbation of COPD and mild to moderate respiratory acidosis when compared to NIV.

In hypoxiemic ARDS patients, use of NIV in moderate to severe ARDS (PaO₂/FiO₂ <150 mmHg) is generally discouraged because of high failure risk (50%–70%). When used, patients with mild ARDS had reduced intuba-

tion rates and mortality compared with unsupported patients with standard oxygen therapy. The majority of ventilatory support in patients with ARDS is represented by invasive mechanical ventilation.

Although mechanical ventilation is an effective support strategy for patients with acute hypoxic respiratory failure, it has the potential to aggravate lung damage through the development of ventilation-induced lung injury. "Protective" controlled ventilation with limited volume and pressure has become the recommended treatment for patients with AHREF, in order to minimize the risk of VILI. During assisted ventilation, derecruitment and lung heterogeneity may facilitate the generation of high regional barotrauma and volutrauma thus increasing the risk of VILI. The addition of cyclic short sustained inflations (sigh) to assisted ventilation is known to optimize recruitment and decrease heterogeneity in patients with AHREF. Sigh might reduce the inspiratory effort and the tidal volume. Addition of sigh to pressure support ventilation (PSV, the most common assisted mechanical ventilation mode) might decrease the risk of VILI, potentially yielding faster weaning and improving clinical outcomes. As prospective clinical trials including long-term use of sigh during assisted ventilation have not been performed yet, we conceived a pilot randomized controlled trial to verify the clinical feasibility of addition of sigh to PSV in comparison to standard PSV.

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2. Pressure support ventilation + sigh in acute hypoxemic respiratory failure patients: study protocol for a pilot randomized controller trial, the PROTECTION trial, Mauri et al.
3. Efficacy and safety of using high-flow nasal oxygenation in patients undergoing rapid sequence intubation, Santi Maurizio Raineri, Andrea Cortegiani, Giuseppe Accurso, Claudia Procaccianti, Filippo Vitale, Sabrina Caruso, Antonino Giarratano and Cesare Gregoretti.

MDR infections in ICU: new insights and future perspectives

Anesthesia, Analgesia, Intensive Care and Emergency Medicine

MISSERI G.*, CORTEGIANI A., GIARRATANO A.

Sepsis remains the most common cause of intensive care unit (ICU) admissions globally. It is responsible for approximately 11 % of all admissions in high-income countries, and recent estimates suggest an annual incidence of 31 million sepsis cases with approximately 6 million deaths worldwide. However, the true burden of the disease is unknown and likely even greater.

A recent report affirms that 10 million people every year will die all over the world due to antimicrobial resistance unless a global action plan against MDR problem is mounted. This has a peculiar impact in settings with high prevalence of MDR infections such as ICUs [1].

The most urgent and serious threats for the ICU include Enterobacteriaceae producing extended-spectrum beta-lactamase (ESBLs), derepressed AmpC and/or carbapenemases (commonly referred to as carbapenem-resistant Enterobacteriaceae CRE), carbapenem-resistant *Acinetobacter baumannii*, MDR-*Pseudomonas aeruginosa* and methicillin resistant *Staphylococcus aureus* (MRSA).

In the last years, new antimicrobial agents have been developed and approved for the treatment of serious infectious diseases due to MDR bacteria, both Gram-positive (GPB) and Gram-negative (GNB) and fungi, and “old” agents have been revisited in their therapeutic role.

Until now most of these new drugs have only been tested in complicated urinary tract infections (UTIs) and intra-abdominal infections (IAIs), skin and soft tissue infections, and limited data for the ICU patients are available.

Along with the progressive emergence of resistance among bacteria, the increasing rate of invasive procedures and concomitant comorbidities disrupting immune response have predisposed critically ill patients to infections caused by *Candida* spp., which represents the third or fourth most common cause of healthcare-related infections. Although *C. albicans* remains the main causative pathogen, the increasing isolations of *non-albicans Candida* spp. resistant to first- and second-line antifungals in nosocomial infections is concerning. Acquired resistance following echinocandin exposure appears to be on the rise, and the emergence of multi-resistant species among *Candida glabrata* and the novel pathogen *Candida auris* pose a serious threat to critically ill patients [2].

Given the complexity of antimicrobial resistance phenomenon, use of rapid diagnostic tests and therapeutic drug monitoring, risk stratification, biomarkers (such as procalcitonin and MR-pro-adrenomedullin) [3] should be improved and adopted to achieve adequate and appropriate clinical management.

New antibiotics alone will not be sufficient to mitigate the threat of antimicrobial resistance. Antimicrobial stewardship programs, an integrated approach where all stakeholders involved in the management of patients with infections collaborate to improve outcome of patients and decrease antimicrobial resistance, are crucial and should be mandatory in every hospital and supported by governments. Containment of MDR infections should be based on surveillance programs and infection prevention and control strategies. Moreover, guidance for clinical use on antibiotic dosing in the ICU and the use of therapeutic drug monitoring (TDM), optimization of empirical treatment, the role of combination therapy for XDR/PDR pathogens, as well as de-escalation and duration of antibiotic therapy should be empowered.

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2. Cortegiani A, Misseri G, Chowdhary A. What’s new on emerging resistant *Candida* species. *Intensive Care Med* (2019); 45:512–5.
3. Cortegiani A, Misseri G, Ippolito M, Bassetti M, Giarratano A, Martin-Loeches I, Einav S. Procalcitonin levels in candidemia versus bacteremia: a systematic review. *Critical Care* (2019) 23:190 <https://doi.org/10.1186/s13054-019-2481-y>.

Training methods to improve cardiopulmonary resuscitation (CPR) quality

Anesthesia, Analgesia, Intensive Care and Emergency Medicine

PUGLIESI* M., RAINERI M.S., GIARRATANO A.

Cardiac arrest is one of the leading causes of death in industrialized countries with a mean survival rate at hospital discharge of about 5-10%. High-quality chest compressions are associated with improved survival rates in the settings of both in-hospital and out-of-hospital cardiac arrest. The rate and depth of compressions, chest recoil and hand position are important parameters affecting the overall quality of chest compressions, which is correlated with blood flow and oxygen delivery to the heart and brain and, consequently, with rate of return of spontaneous circulation (ROSC) and neurologically intact survival at hospital discharge. The research lines of our department have focused on the training methods for lay and professional rescuers to improve CPR quality and on cardiopulmonary resuscitation techniques for bystanders awaiting the arrival of emergency medical service after an out-of-hospital cardiac arrest. The best method for CPR education has not been established. Recently, some automated feedback systems (FS) have been investigated to improve the quality of CPR [1]. These systems are able to provide real-time feedback on CPR, giving the rescuers the possibility to measure and correct their performance. Applying FS during simulation, learners are able to perceive the achieved level of competence at the end of the training session and improve adherence to guidelines. Feedback from instructors has always been the gold standard for both lay and professional rescuers' training. However, their ability to assess learners' skill and competence may not be accurate. Thus, rescuers in training should receive feedback on their CPR skill based on objective methods, able to reliably measure all high quality standard parameters. Several studies demonstrated the efficacy of FS for CPR skill acquisition and retention in health care providers or students. Laerdal QCPR1 is a real-time feedback software able to measure CPR quality which can be connected wireless to a training mannequin (Laerdal ResusciAnne). To our knowledge, no data are available about its use as part of CPR training among lay school students. In our randomized trial published in 2017[2], secondary school students participating to a training on chest compressions with an instructor and a real-time electronic feedback system (Laerdal QCPR1 in form of Laerdal Resusci Anne Wireless SkillReporter1) showed a higher technical skills' acquisition when compared to training with standard instructor-based feedback only. For lay people, there has been a growing interest on hands-only CPR, meaning continuous chest compression

without interruption to perform ventilations. It is easy to understand that it is very difficult to perform an high-quality CPR until the arrival of Emergency Medical service with the hands-only technique and it has been demonstrated that breaks in hands-only CPR can increase its effectiveness. Aiming to compare 3 CPR protocols performed with different breaks to hands-only CPR during an 8-minutes scenario, our second ongoing trial investigates whether the inclusion of intentional interruptions of different frequency and duration during the CPR could increase lay rescuers' CPR quality.

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Scuola di Specializzazione in Chirurgia Generale

Prof. G. Gulotta

Lo Specialista in Chirurgia Generale deve avere maturato conoscenze teoriche, scientifiche e professionali nel campo della fisiopatologia, della semeiotica funzionale e strumentale e della clinica chirurgica generale; ha inoltre specifica competenza nella chirurgia d'urgenza, pronto soccorso e del trauma, nella chirurgia dell'apparato digerente tradizionale, endoscopica e mini-invasiva, nella endocrinochirurgia, nella chirurgia oncologica e nella chirurgia sostitutiva, ricostruttiva e dei trapianti d'organo.

Obiettivi formativi di base: l'apprendimento di approfondite conoscenze di fisiopatologia, anatomia chirurgica e medicina operatoria; le conoscenze necessarie per la valutazione epidemiologica e l'inquadramento dei casi clinici anche mediante sistemi informatici; l'organizzazione e gestione dei servizi sanitari secondo le più recenti direttive.

Lo Specializzando deve acquisire la base di conoscenza necessaria ad organizzare e gestire la propria attività di chirurgo in rapporto alle caratteristiche delle strutture e del territorio nelle quali è tenuto ad operare; la conoscenza degli aspetti medico-legali relativi alla propria professione e le leggi ed i regolamenti che governano l'assistenza sanitaria;

Obiettivi formativi della Scuola: apprendere le conoscenze fondamentali di Anatomia Topografica rilevanti per l'esame clinico obiettivo di Medicina operatoria, i principi di asepsi e antisepsi, le problematiche inerenti l'organizzazione e l'igiene ambientale delle Sale Operatorie. Conoscere lo strumentario chirurgico ed i materiali di sutura nonché le tecniche e metodiche chirurgiche tradizionali ed alternative.

Acquisire un'approfondita conoscenza di base e la relativa esperienza pratica per una valutazione clinica complessiva della malattia e del paziente sulla scorta delle conoscenze di patologie cliniche, anatomia patologica, fisiopatologia chirurgica, metodologia clinica e diagnostica strumentale e per immagini e per l'indicazione al tipo di trattamento medico o chirurgico più efficace in funzione dei rischi, dei benefici e dei risultati per ogni singolo paziente. Essere in grado di scegliere le soluzioni chirurgiche ritenute più idonee nel trattamento della malattia chirurgica sia sotto il profilo delle indicazioni che tecnico.

Avere le conoscenze adeguate per affrontare le problematiche relative all'impostazione e gestione del decorso post-operatorio e dei controlli a distanza.

Acquisire le adeguate competenze multidisciplinari che consentano allo specialista una corretta impostazione del caso clinico che vada al di là della esclusiva competenza tecnico-chirurgica e tale da inserirlo in un lavoro di equipe che si faccia carico, in senso complessivo, della fase pre e post operatoria.

Sono obiettivi affini o integrativi: acquisire le conoscenze di base e l'esperienza necessaria per diagnosticare e trattare anche chirurgicamente le patologie di competenza specialistica di più frequente riscontro in chirurgia generale (chirurgia plastica e ricostruttiva, toracica, vascolare, pediatrica, urologia, ginecologica, ortopedia) o caratterizzate dall'indifferibilità di un trattamento in urgenza; riconoscere,

diagnosticare ed impostare il trattamento definendo in una visione complessiva la priorità nei casi di patologia o lesioni multiple, in pazienti che richiedono l'impiego necessario di altri specialisti (cardiochirurgia, neurochirurgia, chirurgia maxillofacciale)

Sono attività professionalizzanti obbligatorie per il raggiungimento delle finalità didattiche della tipologia:

- almeno 30 interventi di alta chirurgia di cui il 10% come primo operatore. Il resto come secondo operatore;

- almeno 80 interventi di media chirurgia di cui il 25% come primo operatore. Il resto come secondo operatore;

- almeno 325 interventi di piccola chirurgia di cui il 40% come primo operatore. (Sono incluse le procedure di chirurgia ambulatoriale e in D.H.). Il resto come secondo operatore.

- aver prestato assistenza diretta e responsabile con relativi atti diagnostici e terapeutici in un adeguato numero di pazienti in elezione, critici e in emergenza/urgenza.

Lo Specializzando deve aver prestato attività di assistenza diretta per almeno 2 semestri complessivi in chirurgia d'urgenza pronto soccorso e del trauma, in anestesia e rianimazione e nelle chirurgie specialistiche previste dall'ordinamento secondo le modalità definite dal Consiglio della Scuola.

Potrà concorrere al diploma dopo aver completato l'attività chirurgica.

Nella preparazione tecnica è consigliabile, ove possibile, lo studio della medicina operatoria sul cadavere. E' inoltre utile un corso di addestramento con simulatori virtuali e box per l'esercizio in tecniche laparoscopiche. La tecnica di base della micro chirurgia sperimentale va appresa in laboratorio con un corso propedeutico.

Lo specializzando potrà concorrere al diploma dopo aver completato le attività professionalizzanti.

Lo specializzando, nell'ambito del percorso formativo, dovrà apprendere le basi scientifiche della tipologia della Scuola al fine di raggiungere una piena maturità e competenza professionale che ricomprenda una adeguata capacità di interpretazione delle innovazioni scientifiche ed un sapere critico che gli consenta di gestire in modo consapevole sia l'assistenza che il proprio aggiornamento; in questo ambito potranno essere previste partecipazione a meeting, a congressi e alla produzione di pubblicazioni scientifiche e periodi di frequenza in qualificate istituzioni italiane ed estere utili alla sua formazione.

Comparison of metabolic outcomes in patients undergoing laparoscopic Roux-en-Y Gastric bypass versus Sleeve Gastrectomy

General Surgery

DI GREGORIO R. *, PANTUSO G., GULOTTA G.

OBJECTIVE: To prospectively evaluate the effect of different types of bariatric surgery on lipid and glucidic profile and on blood pressure control. The aim of this study is to compare the clinical efficacy of laparoscopic sleeve gastrectomy (SG) and laparoscopic gastric bypass (RYGB) in terms of improvement in the metabolic profile and of co-morbidities resolution.

METHODS: In a 36-months period, Fasting glycemia, HbA1c, Total cholesterol (TC), High-Density-Lipoprotein cholesterol (HDLc), Low-Density-Lipoprotein cholesterol (LDLc) and triglycerides (TG) levels were evaluated before surgery and at 3 different post-operative time-points (3, 6 and 12 months) in consecutive obese subjects undergoing Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy (SG), the presence of treated hypertension and the potential suspension of treatment will be also evaluated.

RESULTS: The study is ongoing, actually. First outcomes seem to evidence best results of RYBG in terms of metabolic profile improvement.

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A research protocol for the use of botuline in the treatment of anal fissure

General Surgery

FALCO N., VENTURELLI P., BONVENTRE S., COCORULLO G., GULOTTA G.

OBJECTIVE: In the wide range of possible treatments for the anal fissure to act as a bridge, between the conservative treatments and the surgical method, is the treatment with botulinum toxin infiltration.

However, the studies in the literature have several limitations: variety of doses, variations in the number of injections, difference in the sites of the inoculation itself. In light of this, it seems, therefore, useful to create an uniformity in the use of botulinum toxin, to obtain not only a “tailored surgery”, but a “tailored treatment” for each patient. The purpose of the work is, therefore, to draw up a protocol that can indicate pre-operative candidates with a greater chance of success in the conservative treatment of anal fissures, and to indicate, in addition, doses, sites and times for the use of the botulinum toxin itself, also in relation to any co-morbidities present.

METHODS: Patients were selected from those with anal fissures with sphincter hypertonus, seen during the outpatient visit. Each of them performed, subsequently, a pre-operative HR-ARM that gave news about the hypertone of the internal anal sphincter.

Diathermy-coagulation of the fissure it is done everytime, but the fissures are treated with different doses and injection sites of the botulinum toxin, diluted in physiological solution. Two doses can be used: one of 25 units and one of 50 units.

In some patients, the inoculation was performed at two sites, one at 3 o'clock and one at 9 o'clock in the intersphincter space. In others at 2 sites, but directly on the internal sphincter.

All patients should perform 3 post-operative control manometries.

RESULTS: The study is ongoing, actually. First outcomes seem to evidence that the most effective dose is 50 cc of toxine in two sites, correlated everytime with a Diathermy-coagulation.

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2. AnalFissures (Brian Jahnnny; John V. Ashurst.) 2018.
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The open abdomen in the treatment of the intra-abdominal sepsis: indications, outcome and surgical technique.

General Surgery

LICARI L.*, SALAMONE G., GULOTTA G.

BACKGROUND: Open abdomen (OA) permits the application of damage control surgery principles when abdominal trauma, sepsis, severe acute peritonitis and abdominal compartmental syndrome (ACS) occur.

METHODS: Non-traumatic patients treated with OA between January 2010 and December 2015 were identified in a prospective database, and the data collected were retrospectively reviewed. Patients' records were collected from charts and the surgical and intensive care unit (ICU) registries. The Acosta "modified" technique was used to achieve fascial closure in vacuum-assisted wound closure and mesh-mediated fascial traction (VAWCM) patients. Sex, age, simplified acute physiology score II (SAPS II), abdominal compartmental syndrome (ACS), cardiovascular disease (CVD) and surgical technique performed were evaluated in a multivariate analysis for mortality and fascial closure prediction.

RESULTS: Ninety-six patients with a median age of 69 (40-78) years were included in the study. Sixty-nine patients (72%) underwent VAWCM. Forty-one patients (68%) achieved primary fascia closure: two patients (5%) were treated with VAWC (37 median days) versus 39 patients (95%) who were treated with VAWCM (10 median days) ($p = 0.0003$). Forty-eight patients underwent OA treatment due to ACS, and 24 patients (50%) survived compared to 36 patients (75%) from the "other reasons" group ($p = 0.01$). The ACS group required longer mechanical ventilator support ($p = 0.006$), length of stay in hospital ($p = 0.005$) and in ICU ($p = 0.04$) and had higher SAPS II scores ($p = 0.0002$).

CONCLUSIONS: The survival rate was 62%. ACS ($p = 0.01$), SAPS II ($p = 0.004$), sex ($p = 0.01$), pre-existing CVD ($p = 0.0007$) and surgical technique (VAWC vs VAWCM) ($p = 0.0009$) were determined to be predictors of mortality. Primary fascial closure was obtained in 68% of cases. VAWCM was found to grant higher survival and primary fascial closure rate.

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Intraoperative ultrasound-guided breast-conserving surgery for palpable and non-palpable invasive breast cancer.

General Surgery

LUPO S.*, VIENI S., GULOTTA G.

OBJECTIVE: The purpose of the study is to evaluate the effectiveness of intraoperative ultrasound-guided breast-conserving surgery (IOUS-BCS) for palpable and non-palpable invasive breast cancer, comparing it to the standard palpation-guided surgery (PGS) (for palpable lesions) and wire-guided localization surgery (WGL) (for non-palpable lesions). The amount of healthy tissue resection, the percentage of tumor-free margins, the re-excision rate, the cosmetic outcomes and the cost-time analysis will be evaluated.

The aim of the study is to demonstrate that intraoperative ultrasound (IOUS) represents a better alternative to the conventional surgery in terms of precision in tumor identification/resection and patients and surgeons comfort. IOUS could be an advantageous technique in palpable and non-palpable tumors conserving surgery, to optimize resection procedures and overcome the standard PG and WGL surgery disadvantages. The IOUS learning curve and the IOUS-BCS cost-effective will also be evaluated.

METHODS: This is a prospective, observational cohort study started in February 2019 and it will end in October 2020. Women affected by early-stage invasive breast cancer (T1-2 N0-1), preoperatively diagnosed by percutaneous biopsy, eligible for IOUS-BCS (for palpable and non-palpable invasive breast cancer) will be recruited. The results will be compared with an historical cohort (January 2017 – December 2019) of 220 with the same characteristics treated with conventional surgery. Both groups will be analyzed for differences in margin status, rate of second surgeries and excess of healthy tissue resected, defined by the calculated resection ratio (CRR), cosmetic outcomes and cost-time analysis. IOUS learning curve will be evaluated using cumulative sum control chart (CUSUM).

RESULTS: The study is ongoing, actually. The first outcomes seem to evidence that intraoperative ultrasound (IOUS) represents a better alternative to the conventional surgery in terms of precision in tumor identification/resection and patients and surgeons comfort.

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**Scuola di Specializzazione in
Chirurgia Plastica,
Ricostruttiva ed Estetica**

Prof. A. Cordova

La scuola di specializzazione in Chirurgia Plastica, Ricostruttiva ed Estetica di Palermo viene istituita nel 2001 direttore Prof. Francesco Moschella.

Oggi la Scuola di Specializzazione è diretta dalla prof. Adriana Cordova e include nella rete formativa l'università di Catania, il Centro Ustioni dell'Ospedale Cannizzaro di Catania il Centro Ustioni dell'ARNAS di Palermo e l'UOC di Chirurgia Maxillo facciale dell'ARNAS di Palermo.

La sede principale assistenziale della Scuola è l'UOC di Chirurgia Plastica dell'AOU Policlinico "Paolo Giaccone" di Palermo sita nell'edificio 6 recentemente ristrutturato.

Sono ammessi fino a 4 specializzandi per anno.

Nella sede principale di Palermo sono presenti 2 sale operatorie principali per interventi maggiori e una sala operatoria per interventi in anestesia locale. Le sale operatorie sono operative 5 giorni a settimana. Il reparto ha una degenza di 18 posti letto. Nella medesima struttura sono presenti:

- il Laboratorio Bioplast dove si svolge la ricerca sulle cellule staminali e la chirurgia rigenerativa
- un laboratorio per le esercitazioni di microchirurgia
- un'auletta multimediale con 12 computer
- una biblioteca.

Presso l'UOC di Chirurgia Plastica di Palermo dove si svolge buona parte dell'attività assistenziale, si trattano tutte le patologie di competenza della Chirurgia Plastica: chirurgia e microchirurgia ricostruttiva post oncologica e post traumatica, chirurgia della mano dove siamo centro di riferimento per le urgenze microchirurgiche (centro CUMI per l'Italia meridionale), chirurgia della mammella, chirurgia post bariatrica, chirurgia della riassegnazione e della conferma di genere.

Gli specializzandi vengono inseriti gradualmente in tutte le attività assistenziali e ruotano nelle diverse strutture della rete formativa per periodi di almeno due mesi.

Gli specializzandi generalmente al IV anno sono incoraggiati a fare esperienze formative in differenti centri Universitari eccellenti per la Chirurgia Plastica .

Gli specializzandi coadiuvano i dirigenti medici strutturati in tutte le attività scientifiche ed assistenziali e nella partecipazione ai gruppi multidisciplinari (GOTEC gruppo oncologico tumori testa collo, Gruppo Melanoma, Progetto TUTTO per la tutela dei pazienti transessuali e transgender in ambito ospedaliero).

Le nostre attività di gruppo non si svolgono esclusivamente in ospedale, abbiamo anche momenti di incontro al di fuori dell'ospedale sono ormai consolidate: la festa di Natale che si festeggia con tutto il personale della struttura e l' "About Me", un giorno dedicato ai nuovi specializzandi che si presentano a tutto il gruppo, a cui associa un evento culturale o sportivo da godere insieme.

Il motto della Scuola è:

*“La Chirurgia non è solo una Scienza, è un modo di vita, una vocazione. Se profonderai tutte le tue energie per perseguire questa professione allora sarai UN CHIRURGO. Se vi dedicherai solamente metà del tuo essere allora sarai UN MEZZO CHIRURGO”**

*dagli scritti di Vladimir Burakowsky storico Direttore dell'Istituto Bakulev di Mosca

Analisis of the correlation between the preoperative lymphoscintigraphic pattern and the incidence of lymphedema of the limbs in melanoma patients

Plastic, Reconstructive and Aesthetic Surgery

CAMMARATA E*, ROSSI M, CORDOVA A.

Cutaneous melanoma represents about 3% of all skin tumors. Nevertheless, it is responsible of 65% of skin cancer-related deaths. Surgical treatment consists of wide local excision (WLE) and sentinel lymph node biopsy (SLNB), with the latter being performed only in case of ulceration or if Breslow thickness is greater than or equal to 0.8 mm. If sentinel lymph node is positive for metastatic cells, complete lymph node dissection (CLND) is indicated too. Lymphedema of the limbs is a possible sequela of axillary or inguinal lymph nodes surgery, with a reported incidence of 0.3% to 12.5% in case of SLNB and of 8% to 89% in case of CLND. Clinical diagnosis is carried out through tape circumferential measurements of the limbs and the diagnostic criterion is defined as a difference of 2 or more centimeters between the circumferential measurement of the affected limb and that of the contralateral one, in specular points at any measurement level. Lymphoscintigraphy is the gold standard for the instrumental evaluation of the lymphatic system. It allows to detect subclinical lymphedema, a condition that must be suspected when, despite the absence of the above-mentioned clinical criterion, patient complains of limb swelling, heaviness or paresthesia. Lymphoscintigraphic criteria of lymphedema are: absent visualization of regional lymph nodes and/or presence of "dermal backflow". Even in healthy subjects with an "intact" lymphatic system, it is demonstrated the existence of different lymphoscintigraphic patterns, defined according to the time it takes for the radiocolloid to reach regional lymph node stations. Contralateral limb is usually used as control, assuming that it is functionally and morphologically identical to the affected one. This is not always true, because it is demonstrated that morphological asymmetry between the limbs can occur in case of unilateral muscular hypertrophy. Moreover, recent studies have proven that the right and the left limb can have different lymphoscintigraphic patterns leading to functional asymmetry between them. The aim of this study is to evaluate if a specific lymphoscintigraphic pattern (or the presence of a difference between the lymphoscintigraphic patterns of the limbs) is related with an augmented incidence of lymphedema following axillary or inguinal lymph node dissection. Secondary objectives of the study are to prospectively evaluate the incidence of lymphedema of the limbs following surgery (at 6 months and 2 years) and to identify risk factors of the disease.

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Study of the regenerative capacity of adipose stem cell spheroids on new natural origin scaffolds with application to the Cranio-Facial district

Plastic, Reconstructive and Aesthetic Surgery

MATTA D. M.D. *, BARBARA DI STEFANO A.B. PH.D., CORDOVA A. M.D.

Reconstruction of Craniofacial defects, in the setting of Trauma, Oncologic resection or Congenital malformation, represent one of the most challenging surgical endeavors in Plastic and Reconstructive Surgery, due to tissue diversity of Craniofacial area. Currently, the most common treatment for bone or soft tissue defect is the surgical repair with the use of Autograft or Allograft. However, those approach are burdened by unavailability of a large quantities of "similar" tissue, donor site morbidity, infection, tissue loss and for Allograft, also disease transmission and host immune rejection. Impact of Craniofacial tissue engineering extends beyond Plastic Surgery practice and may offer application elsewhere. Nowadays, Mesenchymal Stem Cells (MSCs) and in particular Adipose Stem Cells (ASCs) are a field of great interest. ASCs can differentiate into various cell lines with osteogenic, chondrogenic or adipogenic lineages and they hold a great promise as a limitless source of autologous tissues. Adipose tissue is an ideal stem cell source, it is easily available through simple procedure such as liposuction; it contains a large number of Adipose Stem Cells that now are a promising and attractive solution in the field of regenerative medicine. Recently, the scientific community has no longer considered artificial two-dimensional cell cultures because they may not properly represents the potentials of the origin tissue. 3D cultures exhibit a molecular expression patterns and intercellular junctions that are more representative of them in vivo condition. In the last few years, different techniques have been developed for spheroid isolation such as hanging-drop or spinner flasks. We isolated, from lipo-aspirated samples, the Spheroids from Adipose Stem Cells (S-ASCs). They grow in a specific medium serum free, with growth factors and in ultralow-adhesion culture conditions. Recently, we have characterized the S-ASCs demonstrating that these spheroids possess an increased early differentiation potential in all mesenchymal lineages compared to adherent ASCs and in vivo model, they displayed enhanced properties in bone regeneration. We also demonstrated that the SASCs exhibit an microRNA and mRNA profile of highly undifferentiated cells, confirming that they represent a distinct upstream population of stem cells in adipose tissue. In tissue engineering, the choice of materials between natural or synthetic scaffold and type of cells (stem or committed cells) play an important role for the restoration of specific organ or tissue

function. The development of 3D cell-laden hydrogels has enabled to mimic the peculiar scenario of a native tissue. In our study, we will evaluate the biocompatibility and regenerative abilities of SASCs in new vegetal-origin hydrogels, in order to use them for Craniofacial defects repair.

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3. Spheroids from adipose-derived stem cells exhibit an miRNA profile of highly undifferentiated cells (A. Barbara Di Stefano PhD, Federica Grisafi MSc, Marta Castiglia PhD, Alessandro Perez PhD, Luigi Montesano MD, Alessandro Gulino PhD, Francesca Toia MD, Daniele Fanale PhD, Antonio Russo MD, Francesco Moschella MD, Angelo A. Leto Barone MD, Adriana Cordova MD).

Functional hand rehabilitation in spastic patients

Plastic, reconstructive and esthetics surgery

ROMEO M.* (RESIDENT) TOIA F. (TUTOR) CORDOVA A. (DIRECTOR OF SCHOOL)

Spasticity is a motor disorder characterized by a speed-dependent increase in muscle resistance to stretching, ie muscle tone, with hyperexcitability of RNTs, a positive symptom of the first motor neuron syndrome.

There are several causes, including: cerebrovascular accident (Stroke) cerebral or spinal trauma Cerebral palsy (disturbances in fetal or infantile brain development), Multiple Sclerosis and other neurological rare causes: ALS, SLP ...

Spasticity has a significant social impact on the patient's life due to a progressive increase in muscle contracture and joint deformities that cause pain and reduce motor skills in the patient, leading to an ever greater loss of self-care.

The objectives of the treatment of spasticity are: to optimize motor function, reduce pain and prevent deformities of the upper limbs through an algorithmic therapeutic approach that involves pharmacological and surgical treatments.

Non-surgical treatments: drugs (baclofen or BDZ) and chemodenervation agents (botulinum toxin or phenol), are used in the early stages of the disease and then as a support in the perioperative phases and as chronic therapy.

When pharmacological treatments are not sufficient, surgery is taken into consideration: the surgical techniques used are muscle release, elongation / rerouting or tendon transfer, arthrolysis or arthrodesis and selective *neurectomy*, the choice of one or the other varies according to the patient's clinical status.

Selective *neurectomy* is a more recently developed "conservative" surgical technique, described by Brunelli et al. in 1983 and later taken up by Leclercq et al. in its highly selective form of *neurectomy*. It consists of the section of some of the motor fascicles of the nervous branch and has the purpose of rebalancing the forces already present in the limb in those patients in which there is a certain degree of muscular strength.

The main purposes of surgery are to improve the functionality and posture of the spastic limb and increase the self-care capacity and hygiene of the patients, reduce pain, improve appearance and comfort.

For each type of surgical operations there is a codified rehabilitation program and an occupational therapy, for a correct diagnostic and therapeutic plane, for this reason a close collaboration of the surgeon with other specialist, such as: physiatrists, neurologists and therapists is mandatory.

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Immediate reconstruction in patient affected by melanoma: cost saving and our experience

Plastic, Reconstructive and Aesthetic Surgery

SCAVO E.*, CORDOVA A.

Melanoma is an increasing pathology all over the world. In Plastic and Reconstructive Surgery Unit of University of Palermo, we are collecting an increase of cases of melanoma with a pick of 234 patients seen in 2017. The primary objective of surgery consists in achieving oncological radicality and preventing local recurrences.

Primary excisional biopsy and wide local excision are the pillars of surgical treatment; surgical margins of excision are based on the Breslow thickness. Reconstruction should be performed after histological analysis, but some locations, such as the lips or the eyelid, need immediate reconstruction to prevent a great discomfort for the patient; in addition to that, several medications can increase the total cost of procedures for single patient. Moreover, performing an immediate reconstruction can help to increase radicality in those cases with poor defined margins of lesions. Other authors have investigated over the feasibility and security of immediate reconstruction with a range of recurrence between 2% and 10%. Risk factors seem to be: localization (cheek, foot), age of the patient (>65yo), tumor thickness (T4) and histological subtype (desmoplastic melanoma). In our experience, over a review of 1025 patients (from 2007 to 2017) we found 13 cases (1,26%) of positive margins in wide local excision. According to the study conducted by Karanetz et Al. in US, immediate reconstruction leads to a cost saving of 38.5% compared with delayed reconstruction. Reconstruction can be performed by direct suture, skin graft or local flap; the aesthetical result depends on the technique used. According to the current literature and to the results of statistical data from our Unit, we conclude that immediate reconstruction in melanoma patients is feasible, with an acceptable risk of positive margins, a better patient compliance and a cost saving postoperative management.

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Scuola di Specializzazione in Medicina Fisica e Riabilitativa

Prof. G. Letizia Mauro

La Scuola di Specializzazione in Medicina Fisica e Riabilitativa dell'Università degli Studi di Palermo nasce nell'a.a. 2004/2005 sotto la Direzione della prof.ssa Giulia Letizia Mauro. Ad oggi ha visto la formazione di circa 40 specialisti.

Ha una durata di 4 anni, periodo in cui l'assistente in formazione deve aver maturato conoscenze scientifiche e professionali nel campo della fisiologia, fisiopatologia, clinica e terapia delle Menomazioni, Disabilità nonché della partecipazione del disabile alla vita sociale secondo le indicazioni dell'International Classification of Functioning, Disability and Health (ICF) dell'OMS. Lo specialista deve prendere in carico globalmente la persona disabile, coordinare il lavoro di un Team di Riabilitazione per la realizzazione e le periodiche verifiche del Progetto Riabilitativo Individuale e dei singoli Programmi che lo costituiscono.

Durante la formazione sono previsti dei periodi formativi integrati (ovvero tronco comune) per l'acquisizione di conoscenze specialistiche relative alle altre discipline.

Nello specifico gli obiettivi di base si possono così riassumere:

- a) conoscenza approfondita di anatomia funzionale, di biomeccanica e chinesiologia;
- b) conoscenza delle funzioni corporee fisiche e cognitive sottese all'interazione fra persona e ambiente, sia fisiologiche che patologiche;
- c) conoscenza delle procedure di diagnosi, prognosi e terapie specifiche;
- i) acquisizione di specifiche competenze nella valutazione e nel trattamento delle condizioni di dolore acuto e cronico e delle possibilità terapeutiche offerte dai mezzi fisici e dall'esercizio terapeutico;
- d) acquisizione delle basi fisiche, biologiche e tecniche applicative dei mezzi diagnostici e terapeutici specifici della Medicina Fisica e Riabilitativa, attraverso procedure interventistiche e metodi che utilizzano tecnologie avanzate;
- e) conoscenza delle indicazioni e degli effetti terapeutici generali dei trattamenti farmacologici principalmente in relazione all'interazione con la disabilità;
- l) acquisizione di competenze nella gestione clinica generale di condizioni di disabilità associata a postumi chirurgici o patologie di area specialistica ortopedica, neurologica, internistica ed oncologica, con particolare riguardo alla disabilità sostenuta da patologie ad andamento cronico od evolutivo;
- h) conoscenza delle principali metodologie di ricerca che sono impiegate nell'ambito di medicina fisica e riabilitativa, con particolare riguardo alle specifiche tecniche di disegno sperimentale e di statistica;
- g) conoscenza dei principali aspetti normativi ed organizzativi e le principali metodologie di gestione dei servizi sanitari e sociosanitari, nonché prin-

cipi e metodi fondamentali di comunicazione, informazione e formazione in ambito sanitario e scientifico, incluse le principali metodiche di comunicazione mediatica attraverso mezzi informatici;

m) acquisizione di conoscenze sull'epidemiologia della disabilità, sulla programmazione ed organizzazione sanitaria e sociale della Riabilitazione, con particolare riguardo all'organizzazione dei servizi assistenziali mirati all'inserimento familiare, scolastico-formativo e lavorativo.

Denosumab: molecule against pain during the hormonal block in breast cancer

Physical and Rehabilitative Medicine

CARITÀ F.*, SCATURRO D., LETIZIA MAURO G.

Denosumab is an IgG2 human monoclonal antibody whose mechanism of action is due to the binding with RANKL, preventing the activation of its receptor, RANK, present on the surface of osteoclasts, inhibiting its formation, functionality and survival and increasing bone mass in patients undergoing hormone ablation therapy. The aim of the study is to evaluate the efficacy of pain control and QoL in women with breast cancer and in adjuvant hormone therapy at 12 months from the beginning of treatment with Denosumab + Vit.D

The comparative observational study conducted on 51 women affected by breast cancer in adjuvant hormone therapy and in treatment with Denosumab + Vit.D. The recruited patients were divided into two control groups: group A of 27 subjects (61.3 years) who were administered for at least 12 months 60 mg of Denosumab once every 6 months and Control group B of 24 women (57.6 years) treated with bisphosphonates.

All patients were enrolled after performing lumbar and femoral DEXA, dorsal-lumbar spine RX with morphometric count according to Genant and urinary and blood tests for bone metabolism. In addition, NRS and ICF scales were administered.

Patients in group A were examined at T0 (basal), T1 (6 months) and T2 (12 months) and compared with group B. In patients of group A DEXA showed an improvement in the mean densitometric values at lumbar level (mean total T-score at T0 -2.06 at T2 -1.57) while the mean value of Total femoral T-score did not undergo statistically significant changes. An increase in Vitamin D values was also found: at T2 68.18% of patients reported a vit D value >31 ng/ml (T1 44.12%)

Furthermore, in group A a reduction in the mean value of NRS was observed (T0 5.03; T2 3.81), in particular the percentage of patients reporting pain at ≤ 3 NRS was 14.81 to T0 while at T2 it was 37.04. Also in group B an improvement in pain symptoms was shown, however the women who reported an NRS ≤ 3 were 12.92% at T0 and 18.01% at T2. There was no difference in terms of reducing the consumption of pain medication between treatment groups. Denosumab improve mild-moderate pain as well as the QoL of patients with breast cancer in adjuvant hormonal block. Denosumab + Vit D has shown analgesic superiority over alendronate + Vit D, however it does not replace conventional anti-pain therapy but contributes to it with an additive co-analgesic effect.

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Lymphomas and bone health: is it possible to improve the quality of life?

Physical and Rehabilitative Medicine

DI GAETANO G., SCATURRO D., PROF.SSA MAURO G.L.

Lymphomas are neoplasms of the immune system that originate from the B and / or T / NK lymphocytes at different stages of their differentiation [1]. The osteopenizing effect of glucocorticoids is known in literature in patients with Hodgkin's lymphoma (LH) and Non-Hodgkin lymphoma (LNH).

The aim of our study is to evaluate the risk of osteoporosis in terms of clinical outcomes (fragility fractures), functional (ADL and IADL) and instrumental (spine X-ray with morphometry and bone mineral density); analyze any existing associations between markers of bone metabolism and predisposing clinical-instrumental characteristics.

Our observational study was conducted on 55 patients selected at the "Centro di Riferimento Regionale per le coagulopatie congenite nel bambino nell'adulto dell'UO di Ematologia" and for whom a specialized psychiatric evaluation was requested at the "Ambulatorio di Malattie Metaboliche dell'Osso dell'UOC di Medicina Fisica e Riabilitativa" of the University Hospital Paolo Giaccone of Palermo in a period between December 2017 and March 2019.

In the preliminary study we examined 29 patients, 19 males and 10 females, of which 26 with LNH and 3 with LH). The inclusion criteria were: age between 16-90 years, previous diagnosis of Lymphoma and previous cycles of chemo and / or radiotherapy and / or corticosteroids for a period longer than 3 months. The exclusion criteria, on the other hand, included: the presence of severe motor disabilities, concomitant neoplastic / metastatic forms and uncooperative patients.

All patients underwent psychiatric evaluation, as well as instrumental evaluation (dorsolumbar X-ray with morphometric count according to Genant and femoral and lumbar DEXA) and to haematochemical and urinary tests of pre (T0) and post (T1 at 1 year) bone metabolism pharmacological - rehabilitation program project. The following CIRS assessment scales were also administered (score 0 -> 3), Sarc-F scales (0-5), Tinetti scale (0-28), Mini-Osteoporosis Quality of Life scale (10-70).

From the preliminary analysis of the data it can be seen that 19 on 29 patients present asymptomatic vertebral fractures, of which 9 more than 3 fractures. 24 presented a marked hypovitaminosis D, of which 2 in a deficient state (<10 ng / ml) and with insufficient Vit D (11-30 ng / ml), while only 5 patients had normal values of Vit D > 31 ng / ml. These results reflect the pa-

tients' femoral and lumbar DEXA values, of which 10 had a frank osteopenic value with a total femoral T-score <-1 and ≥ -2.5 , 2 patients had a total femoral T-score <2.5 and 15 patients with normal T-score values <1 . Moreover, statistically significant relationships emerged between the anthropometric and clinical variables of each patient and the PTH values that are significantly increased in relation to factors such as age, previous cortisone therapy, presence of vertebral fractures.

Preliminarily, our results provide evidence of the osteopenizing effect of prolonged glucocorticoid therapies and repeated cycles of chemo/radiotherapy in patients with Lymphoma, which can be highlighted using imaging techniques and laboratory investigations.

Therefore, an early physiatric evaluation could identify patients at high risk of osteoporotic disease, in order to prevent their advancement, in terms of the onset of fragility fractures, as well as the improvement of quality of life and the outcome of the patient.

The current lack of clinical trials in patients with HL / NHL patients with altered bone metabolism highlights the need to continue the study on a larger population, even with other possible stratification methods, in order to implement a fragility fracture prevention.

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Scuola di Specializzazione in Odontoiatria Pediatrica

Prof. G. Giuliana



La Scuola di Specializzazione in “Odontoiatria Pediatrica” dell’Università di Palermo è stata attivata nell’anno accademico 2016-17 ed è attualmente al terzo anno di Corso. La Scuola si articola in tre anni e si pone come obiettivi fondamentali la conoscenza della diagnostica, clinica e strumentale, della fisiopatologia e degli aspetti preventivi e terapeutici del distretto dento-maxillo-facciale, l’individuazione di percorsi diagnostici utili ad inquadrare i vari tipi di patologie dell’apparato stomatognatico e l’acquisizione di autonomia nella gestione clinica, ivi compresa la gestione comportamentale del paziente in età evolutiva. La competenza professionale verrà acquisita attraverso un’intensa attività clinica svolta con il proprio tutor, finalizzata alla diagnosi, alla prevenzione e al trattamento, anche in condizioni di emergenza-urgenza, sia delle più diffuse patologie dell’apparato stomatognatico che all’approfondimento di conoscenze sulle implicazioni loco-regionali e sistemiche correlate al trattamento di pazienti pediatriche affetti da malattie di altri sistemi ed organi ivi comprese le malattie rare.

Study of oral microbiota and diet as causal factors of Black Stains in the pediatric patient

Pediatric Dentistry

CUSIMANO D.*, GIAMMANCO G., GIAMMANCO M., PIZZO G., GIULIANA G.

The aim of the following study is to identify and quantify microorganisms in the saliva of black stain patients using species-specific probes for *Actinomyces israelii*, *Actinomyces naeslundii*, *Streptococcus mutans* and *Lactobacillus* spp, as well as a universal probe for bacterial 16S rDNA, to obtain the figure of the total bacterial counts (for test and control group). This study represents a first phase of the research line on extrinsic tooth pigmentation on developmental age patients.

Materials and methods. The selected sample is composed of 20 subjects aged between 2 and 15 years and in good general and oral health among the patients included in a dental examination trial at the Department of Pediatric Dentistry of the University Hospital of Palermo, after obtaining informed consent from parents. Subjects with a positive anamnesis for systemic diseases or with enamel defects were excluded from the study. Exclusion criteria were also a diet including regular use of tea, coffee, iron supplements, or antibiotic therapies in the 3 months prior to enrollment and the use of mouthwashes/toothpastes containing antiseptics.

Parents/tutors were asked to complete a questionnaire on their occupational status and level of education, as well as their eating habits, the frequency of brushing and the patient's dental records. A sample of 20 patients without BS was used as control group. From all subjects participating to the study a sample of 5ml of unstimulated saliva was recovered from the right and left buccal area through a sterile syringe, after 2 minutes waiting for the accumulation of an adequate amount of saliva.

Statistical analysis was carried out using descriptive and inferential statistics (mean and standard deviation; chi-square test, t test for non-paired data). StatView 5.0.1 statistical software (SAS Institute, Cary, NC, USA) was used for this purpose, and the tests were considered significant at p values less than or equal to 0.05.

The study protocol will be presented for approval to the Palermo 1 ethics committee.

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Epidemiology, prevention and control of oral diseases in pediatric subjects

Pediatric Dentistry

MALTESE A.M.*, BUTTACAVOLI F., PIZZO G., GIULIANA G.

Caries and periodontal diseases are a neglected epidemic by millions of Italians who suffer unnecessarily from them. Both diseases are preventable and the combination of high prevalence, high morbidity and relative inattention from the National Health Service (NHS), makes caries and periodontal disease a significant public health problem. In this perspective, the World Health Organization and the University of Milan have promoted a national epidemiological study aimed at a sample of 4, 6 and 12-years-old students from schools in the North, Central and South of Italy. The study provides for the administration of a questionnaire to parents and a dental examination carried out at school by dentists trained by the WHO.

In our town the epidemiological study planning and the survey were carried out by professors of the School of Specialization in "Pediatric Dentistry" (Prof. G. Giuliana and Prof. G. Pizzo) supported by specialist dentists from the same School, calibrated according to the WHO methodology.

The survey was carried out between 2017 and 2019 involving 2701 children attending schools in the 8 districts of the town.

The parents were sent a letter which explained the nature of the survey and contained a pre-printed form for the issue of informed consent to participate in the survey with a questionnaire regarding the family nuclear, the oral hygiene and eating habits of the minor and the child's previous dental experiences.

The ICDAS (International Caries Detection and Assessment System) was used to detect the prevalence of carious lesions. The dentist used for each child visited a dental mirror and the CPI (Community Periodontal Index) index for periodontal assessment.

Preliminary results showed that 25.3% of 12-years-old students had gingival bleeding and 41.1% had tartar.

The caries index (ICDAS) shows us that as early as 4 years, 20% of children have initial carious lesions, 37% have dentine caries and that 34.38% have highly destructive caries.

At 12 years, 34.95% had initial carious lesions, 46% had cavities that already affected dentin and that 42.44% had highly destructive cavities.

The exigence to implement a program of prevention / early treatment of caries/gingivitis in pediatric subjects living in Palermo, since the first months of child's life, was born from the data analysis. The project "Un sorriso per



tutti i bambini", carried out at the U.O. of "Pediatric Dentistry" of Policlinico Paolo Giaccone in Palermo, was therefore finalised in order to

1) improve efficiency and effectiveness in the promotion of the oral health of minors, through the creation of a preventive / assistance route of significant social health impact;

2) assess the effectiveness of the preventive methodologies adopted.

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Laterolateral telerradiography of the skull as a screening method for OSA / OSAS, in patients in orthodontic treatment

Pediatric Dentistry

TERSIGNI U. *, SPINUZZA P., MILITI A., NUCERA R., PIZZO G., GIULIANA G.

Aim: Obstructive sleep apnea syndrome (OSAS) is the most common type of sleep apnea and it is caused by complete or partial obstruction of the upper airway. Adenotonsillar hypertrophy, obesity, cranio-facial anomalies and neuromuscular diseases are the main risk factors for the development of OSAS in the pediatric age. Specially several studies identify the relationship between respiratory disorders in sleep and obesity, and, in particular, between OSAS and obesity, designing a prevalence of OSAS among obese subjects between 14 and 78%.¹ The diagnosis of OSAS in the child is of great importance as it can lead to neurocognitive and behavioral complications, growth retardation, systemic arterial hypertension, pulmonary hypertension, cardiovascular disease and metabolism.

The WHO (World Health Organization) has established the new criteria for the classification of Obesity on the basis of BMI and the risk of comorbidities, identifying a moderate risk for underweight subjects, a very low risk for normal weights and an increased risk from severe to severe for overweight and obese individuals respectively.

According to that the aim of this study is to evaluate the correlation between obstructive sleep apnea syndrome and cephalometric variables in children considering age and BMI.

Materials and methods: Children aged 7–10 years and 11-14 years with no genetic syndrome, previous otorhinolaryngologic or orthodontic therapy treatments are being selected from our Departments of Paediatric Dentistry, University of Palermo, and from the Department of Orthodontics, University of Messina (Italy).

All patients so far recruited and visited for orthodontic problems were in mixed or early permanent dentition phase, with the first upper molars fully erupted and presented to the history of several symptoms of Osas, such as recurring episodes of shallow or paused breathing during sleep, waking up frequently to urinate, morning headaches, memory or learning problems and not be able to concentrate or feeling irritable.

Dental records and lateral cephalometric radiographs were obtained for all of the patients and than they have been subjected to paediatric, otolaryngology and polysomnography visits.

Subject with a positive diagnosis of Osas were studied and they were divided in group based on their BMI.

In all groups the inter-molar distance in dental records was measured, and the cephalometric traces have been calculated. As reported by the study by Galeotti et al. the cephalometric measurements analysed are S-PNS, ad1-PNS, and ad2-PNS for the nasopharynx; p-pp and pa for oropharynx; H-H' for the Hyoid bone; SNA for the maxilla; SNB; ANB and Go-Me for the mandible; S-Go, N-Me and P-A for facial Height; SN for cranial base; SN-MP and PP-MP for the typology, and angle ArGoMe for Growth prevision.

At the time that children are still in the way of recruitment the results may not yet be defined; however it is necessary to emphasize the importance of the study, because in the child respiratory disturbances in the sleep, and in particular the OSAS, are often underestimated, despite representing the third place between the threats of health after the smoke and the excess of weight.³

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Scuola di Specializzazione in Oncologia Medica

Prof. V. Bazan

La scuola di Specializzazione in “Oncologia Medica” dell’Università di Palermo è attiva da circa un ventennio e si articola in cinque anni durante i quali si garantisce la formazione nella gestione e nel trattamento del paziente oncologico e delle sue complessità.

Consente di sviluppare e maturare le conoscenze scientifiche teoriche e pratiche dei tumori solidi più frequenti ma anche di quelli rari, le competenze specifiche e le abilità necessarie per pianificare il percorso assistenziale che partendo dalla diagnosi clinica e strumentale porta alla scelta del trattamento ed alla gestione del follow-up nelle varie fasi di malattia.

Il medico in formazione viene guidato e supervisionato da un tutor al fine di maturare le competenze professionali per lavorare, al termine del corso di specializzazione, in maniera autonoma.

La scuola favorisce la discussione dei casi clinici promuovendone la interdisciplinarietà attraverso la organizzazione di specifici tumor board in collaborazione con altre unità operative aziendali e con strutture ospedaliere di riconosciuto valore scientifico sul territorio. Inoltre, durante il percorso formativo vengono acquisite capacità in grado di permettere la discussione critica della letteratura scientifica oncologica mediante la partecipazione ai journal club appositamente pianificati dove vengono affrontate anche tematiche relative alla terapia farmacologica specifica e di supporto in oncologia, la comunicazione medico/paziente e la medicina palliativa.

L’attività ambulatoriale prevista dalla scuola viene alternata a periodi di frequenza in altri reparti secondo quanto previsto dallo specifico regolamento della scuola per ciascun anno di frequenza. Inoltre, la scuola arricchisce l’offerta formativa dando accesso ai laboratori di genetica e biologia molecolare oltre che l’ambulatorio di counseling oncogenetico dove l’assistente in formazione acquisisce competenze sulle principali tecniche ed i principali aspetti che costituiscono le basi della oncologia personalizzata e sulla gestione delle principali sindromi a trasmissione eredo-familiare correlate alla patologia oncologica, contestualizzandole nell’attività ambulatoriale o all’iterno di trials clinici innovativi.

Durante il quinquennio l’assistente in formazione avrà modo di completare la sua preparazione mediante la partecipazione a convegni, lezioni ed altre attività didattiche che ne consentiranno l’aggiornamento continuo, prenderà parte a progetti di ricerca scientifica e a studi clinici.

Infine, la preparazione verrà ulteriormente impreziosita grazie alla frequenza in strutture sanitarie italiane ed estere facenti parte della rete formativa

Clinical evaluation of BRCA reversion mutations in ovarian cancer detected by liquid biopsy

Medical Oncology

CUTAIA F.*, RUSSO A., BAZAN V.

About 17-20% of ovarian carcinomas are associated to pathogenetic variants (PV) in the BRCA 1/2, tumor suppressor genes.

Patients with BRCA 1 PV have a risk of eighty years of ovarian cancer of 35-46% and patients with BRCA2 PV have a risk of 13-23%. BRCA1 and BRCA2 are critical proteins in the homologous recombination. Many of the other proteins involved in homologous recombination (HR) repair are recognized to also contribute to hereditary cancer risk including ATM, CHEK2, BARD1, BRIP1, Mre11, RAD50, NBS1, RAD51C, RAD51D and PALB2.

The analysis of the BRCA 1 and BRCA 2 genes should be performed, as suggested by the new Aiom 2019 Recommendations, since the diagnosis of epithelial ovarian carcinoma, preferable in the first instance on tumor tissue, as the BRCA germline test is able to highlight only the hereditary variants.

The identification of pathogenetic variants in patients with ovarian cancer has a dual role: a predictive response to therapy with Poly (Adp-Ribose) Polymerase (PARP) Inhibitor (PARPi) and preventive in hereditary variants. PARP inhibitor block the action of HR Pathway, inducing cancer cells apoptosis, and this led to their approval as maintenance therapy to the previous platinum treatment.

Although PARP inhibitors have emerged as promising new therapeutic approaches for tumors arising in BRCA mutation carriers, drug resistance has become an important clinical issue. The investigation of the multiple potential resistance mechanisms has led to the identification of six mechanisms of resistance to Parp inhibitor: Homologous recombination repair restoration, exploiting altered cell cycle regulation, drug efflux, signal transduction, miRNA environment, PARP expression. The mechanism of homologous recombination repair restoration includes: secondary BRCA1/2 mutations, 53BP1 regulation and replication fork dynamics.

The aim of our project is to identify secondary BRCA1 / 2 mutations, also known as reversion mutation, by ctDNA analysis from liquid biopsy using Next generation Sequencing (NGS) technology.

Reversion mutations revert the primitive mutation and restore BRCA function; conferring resistance to platinum-based therapies and PARPi.

Liquid biopsy is an excellent technique as it is minimally invasive, reproducible, reliable, inexpensive, representative of tumor heterogeneity; therefore it is certainly much more advantageous than tissue biopsy.

The plasma obtained by liquid biopsy is taken at ovarian cancer diagnosis, during the first platinum treatment line and during maintenance therapy with the Parp Inhibitor.

The identification of these secondary mutations predicts resistance to Parp inhibitor therapy and allows us a clinical selection of the most effective treatments for each patient: the identification of biomolecular progression could thus precede the identification of radiological and clinical progression.

However, validation studies are needed to determine the diagnostic accuracy and the optimal timing for the use of this method in the natural history of the disease.

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Study of Plasmatic Expression of Immunecheckpoint PD-1 in Neuroendocrine Neoplasms (NENs)

Medical Oncology

DE LUCA I.*, BADALAMENTI G., BAZAN V.

BACKGROUND: PD-1 and its ligand PDL1 are critical immune checkpoint molecules that negatively regulate T cell activation. Their blockade with specific antibodies is emerging as an effective and promising treatment option against several solid tumors. The evaluation of the expression of immune check-points has many limitations: firstly it is carried out exclusively on tumor tissue, by immuno-histochemical staining. This therefore requires the need to have an adequate histological sample and adequate study techniques available. Secondly, this evaluation, carried out on the tumor tissue at the time of diagnosis, does not allow to detect the changes that can occur in the tumor microenvironment following the complex and dynamic interactions between the immune system and tumor cells, above all following the selective pressure of the treatments administered.

Unlike other tumors, the expression and potential role of immune checkpoints in Neuroendocrine Neoplasms (NENs) are still unknown. Our main objective is to detect plasmatic expression levels of PD-1 in NENs patients, evaluating their potential role in prognosis and clinical evolution of disease.

PATIENTS AND METHODS: This prospective pilot study was conducted by analyzing blood samples from 64 individuals divided into 3 groups: 1) Patients with localized disease surgically excised. 2) Metastatic NEN patients receiving a medical treatment; in this metastatic setting, patients were also divided in relation to the site of the origin tumor; three main primary localizations were observed: Gastro-Entero-Pancreatic Neoplasms (GEP-NEN) (53%), Lung Neoplasms (L-NEN) (31%) and the group of Patients affected by Merkeloma (16%). 3) Control group with healthy individuals. In each plasma sample we analyzed the protein expression of PD-1 by ELISA assays.

RESULTS: Our analysis showed that PD-1 is differentially expressed in plasma of individuals into 3 groups, with higher levels in the group of metastatic NEN patients than patients with localized disease and the control group. Another relevant difference is found into metastatic NEN patients group in relation to the site of origin of the tumors: Patients with NEN of the lung (L-NEN) have higher expression levels than gastroenteropancreatics (GEP-NEN) and this difference is statistically significant ($p=0,0001$) (ng/mlmean: L-NEN 14.5, GEP-NEN 8.2, Merkel cell carcinoma 3.8).



CONCLUSION :identification of plasma PD-1 levels, correlated to specific site of origin of the tumors, could have a significant predictive value, representing a promising tool to select clusters of patients who may benefit from specific immunotherapy.

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Is there a role for immunotherapy in oncogene-addicted non small cell lung cancer (NSCLC)?

Medical Oncology

MADONIA G.* , RUSSO A., BAZAN V.

BACKGROUND: Since a few years we have been using targeted therapies against oncogene-addicted metastatic non small cell lung cancer (mNSCLC) harboring EGFR mutations; recently, a new 3^o generation anti-EGFR tyrosine kinase inhibitor (TKI) (Osimertinib) has been approved by AIFA as first-line treatment for this subset of patients. Meanwhile, the development of new immunological drugs, targeted against the PD1 or PD-L1 receptors, has revolutionized our approach to the treatment of mNSCLC. However, data on the efficacy of anti PD-1/L1 drugs as second-line treatment for EGFR-mutated (EGFRm) NSCLC have been discouraging, with many trials showing worse progression-free survival (PFS) compared to standard chemotherapy (1). Moreover, response lacked correlation with tumor PD-L1 expression. Indeed, the role of other predictive immune response biomarkers in mNSCLC has been explored: Checkmate227 found association between clinical response to Nivolumab-Ipilimumab and tumor mutational burden (TMB); IMpower150 correlates clinical response to Atezolizumab with T effector gene signature (Teff). Moreover, biomolecular studies (2, 3) have discovered that EGFRm NSCLC present a different tumor microenvironment compared to non-oncogene-addicted lung cancer: lower PD-L1 expression, lower TMB and fewer CD8+ tumor infiltrating lymphocytes (TILs). These data help explaining the lack of response to immune checkpoint inhibitors in these patients and may help select those that truly benefit from immunotherapy treatments. However few data are available on how the immunological landscape is modified during TKI treatment and the role of liquid biopsy in evaluating immune response biomarkers. remains an open question.

PATIENTS AND METHODS: The aim of our study is to evaluate the expression of multiple immune biomarkers on EGFRm mNSCLC tissue samples and to confront the results with the data obtained through liquid biopsy. We also aim to evaluate the evolution of these biomarker during treatment with 3^o generation TKI. All patients affected by EGFRm mNSCLC, treatment-naive, with no prior diagnosis of other cancers and no history of autoimmune diseases referring to our center will be consecutively and prospectively enrolled in our study. A tissue sample will be obtained and analyzed for PD-L1 expression, TMB, Teff and MSI. At the same time, liquid biopsy will be performed: PD-L1 will be evaluated through exosome-derived mRNA, while TMB and MSI through ctDNA analysis. Patients will then start



first-line treatment with Osimertinib. A new liquid biopsy will be performed every 12 weeks until progression, re-evaluating the aforementioned biomarkers. Our study will improve our knowledge of the EGFRm mNSCLC microenvironment and provide informations on the efficacy of liquid biopsy as a method to evaluate the tumor immunological landscape and its evolution during treatment. These data may help identifying new biomarkers predictive of response to second-line treatment with immune-checkpoint inhibitors.

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Scuola di Specializzazione in Ortopedia e Traumatologia

Prof. A. Sanfilippo

La Scuola di Specializzazione in Ortopedia e Traumatologia dell'Università di Palermo annovera 19 Docenti che, nell'arco dei cinque anni di Corso, curano, per singolo anno, la formazione di cinque nuovi Specialisti. Oltre che per le materie di base (Anatomia, Fisiologia, Biochimica Clinica, Anatomia Patologica e Farmacologia) l'impegno formativo viene svolto in ambito clinico con discipline quali la Medicina Interna e la Chirurgia Generale, nonché nell'ambito di discipline specifiche che, oltre all'insegnamento professionalizzante fondamentale costituito dalle Malattie dell'Apparato Locomotore, comprende anche insegnamenti integrativi ed interdisciplinari quali la Medicina Fisica e Riabilitativa, l'Oncologia, l'Urologia, l'Anestesiologia.

L'attività didattica pratica e di tirocinio viene espletata con la quotidiana attività di ambulatorio, di reparto, di sala gessi e di sala operatoria. L'attività di ricerca prevede l'inserimento degli Assistenti in formazione nei filoni di ricerca promossi dalla Scuola con la partecipazione alle pubblicazioni e alle attività congressuali che ne conseguono.

Gli obiettivi formativi della Scuola sono quelli di far acquisire all'Assistente in formazione approfondite conoscenze dottrinali ed adeguate capacità applicative clinico-pratiche, anche delle varie tecniche operatorie (open, mini-invasive ed artroscopiche), tali da consentirgli un adeguato inserimento nell'ambito lavorativo professionale.

Analysis of heavy metal's concentrations in the patients with osteosynthesis or articular prosthesis

Orthopaedics and Traumatology

CIOFFI A. *, VIGNI G.E., SANFILIPPO A.

INTRODUCTION: The frequent use of osteosynthesis with intramedullary nails has aroused our interest for the direct contact of the device with the Bone Marrow and the vascular response. The aim of the study was to detect and quantify in the time the patient's exposure to the metal particles used in these devices (Ti-6Al-7Ni).

MATERIALS AND METHODS: Patients treated with intramedullary nails for fractures of the femur, tibia and humerus were selected and patients under the age of 15 and over 99, who underwent previous osteosynthesis, with low compliance and bald patients were excluded. A sample of hair was taken from the neck region in the pre-surgery, at 6 months and at one year and a blood sample in the pre-intervention, on the second post-operative day and at one year. For each patient were collected anamnestic datas related to possible sources of metals. In each stage of the study materials were used without metallic components. The trace determination concerned the following elements: Al, As, Ba, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, V, Zn. After treatment of hair samples with appropriate washing process (HNO₃ and H₂O₂) and mineralization (microwave mineralizer), the analytes were quantified by mass spectrometry with inductively coupled plasma source (ICP-MS). The blood matrix was subjected to the same process of mineralization.

RESULTS: The analysis of hair samples showed at 6 months the increase of some metals not present in the alloy involved and an increase of Ti deposition, although not statistically significant. The blood matrix revealed a clear decrease in all the elements sought after the pre and post operative comparison. In the preliminary results no case of hypersensitivity to the device was recorded.

DISCUSSION: Despite an increase of Ti, this remains a biocompatible and biochemically inert metal. The differences in the blood sample between the pre and post operative stages were traced to the infusion therapy practiced. It was not possible to search for Ni in the samples.

CONCLUSION: Preliminary results have suggested the need to confirm the extent and duration of the metal deposition process in a larger sample and to extend the research to other depots.

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Regeneration of the sciatic nerve: use of a tubular scaffold with nano-particles on a murine model

Orthopaedics and Traumatology

CIOFFI A.*, VIGNI G.E., SANFILIPPO A.

INTRODUCTION: The aim of the study is to improve peripheral nerve regeneration through the use of nano-particle scaffolds capable of gradually and lastingly releasing growth factors that stimulate regeneration and axonal progression from the proximal stump.

MATERIALS AND METHODS: In this study, 20 male Wistar Rats were used, of the same age, weighing between 140 and 200gr, divided into two groups: 10 experimental subjects and 10 control subjects. Each animal was anesthetized, according to protocol, and received prophylactic antibiotic therapy based on weight, early the procedure. After trichotomy and scrub, a skin incision of about 40mm was performed, then the sciatic nerve of the right hind limb was collected, isolated and dissected before division into its terminal branches. The scaffold was then implanted by wrapping it around the two nerve stumps. The operation was performed under aseptic conditions, a PowerFocus surgical microscope was used and the surgical times were evaluated. About 60 days (T1) and 90 days (T2) the following analyzes were performed: Walking Track Analysis (WTA) for the evaluation of motor function, electromyographic examination and histological examination (of 5 rats for group at 45 days). An MRI exam (7 Tesla) was performed on the remaining 10 rats at 90 days.

RESULTS: The histological examination of the sciatic nerve of subjects belonging to the scaffold group, carried out at 45 days, showed a widespread monocytic infiltrate with a giant-cell component, associated with a fibroblastic reaction. At the center of this inflammatory reaction that involved the scaffold, a Wallerian degeneration was observed around the nerve.

DISCUSSION: The implantation of the nano-particle scaffold was much faster and easier than other surgical techniques. There were no infectious or rejection complications of the device. The persistence of the endoneural tube is relevant to histological examination. The MRI results are still partial.

CONCLUSION: Our study demonstrated how the use of the nanoparticle scaffold is an effective method to increase nerve regeneration of the injured peripheral nerve. The results obtained encourage new research perspectives aimed at testing the use of this device on a larger sample and with longer testing times.

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Does the 5-Strand-Graft Have superior biomechanical behaviour than the 4-Strand-Graft during ACL reconstruction?

Orthopaedics and Traumatology

MORELLO F.*, PITARRESI G., CAMARDA L.

In literature was reported that a graft diameter < 8 mm represents a high predictor for graft failure and ACL revision surgery. When semitendinosus tendons harvest results in short tendons, it could be a reliable option to harvest the gracilis tendon preparing a 5-strand hamstring graft with a double-stranded gracilis. Creating the 5-strand hamstring graft, each single graft limbs could share loads differently compared to 4-strands or tripled graft, better resisting to initial loads observed during the postoperative rehabilitation period.

This study aimed to compare the biomechanical proprieties of 4 and 5-strand-grafts hypothesizing that increasing the number of strands could positively influence the graft behaviour, reducing graft elongation during cyclic loads and increasing the graft stiffness.

For the present study, fresh-frozen bovine common digital extensor tendons were used. Tendon grafts were prepared and sized to have a length of almost 27 cm and a cylinder 4 strand diameter of 8 mm. In half of all samples (Group A, n=12,), the graft was formed by 2 bundles duplicated around a metallic rod creating a 4-strand-tendon construct. In the other half of samples (Group B, n= 12,) 5-strand-tendon construct was created duplicating a single tendon around the rod, and tripling the other one. For the tests, an electro-mechanic two-columns universal testing machine (Instron 3367), equipped with a 30 KN load cell was used. The grafts were preconditioned at 50 N for 10 min, followed by 1,000 cyclic loading between 50 and 250 N. Load-to-failure test was then carried out at a rate of 1 mm/s. For each specimen, load-displacement curves were recorded and analysed to determine the amplitude of graft elongation during a peak-to-peak fatigue cycle, the graft slippage, the cyclic elongation at 500th and 1000th cycle and the initial, cyclic and pull-out stiffness. Furthermore, ultimate failure load and the mechanism of final static failure for each specimen was recorded.

No statistically significant differences were found between two groups concerning cyclic elongation at the 500th cycle and at the final cycle. An increased stiffness was observed in the Group B during cyclic loads and at pull-out ($p < 0.05$). Significant differences were noted at the ultimate load-to-failure between Group A (1533 ± 454 N) and Group B (1139 ± 276 N) ($p < 0.05$).

This study showed that both graft construct appears to be biomechanically effective in a bovine tendon model. 5-strand-graft showed an increased

stiffness and a decreased ultimate load-to-failure comparing to the 4-strand-graft construct. Biomechanically, no real benefit could be observed in the clinical setting increasing the numbers of strands used for the ACL reconstructive surgery.

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Posterior meniscal root repair: a biomechanical comparison between human and porcine menisci

Orthopaedics and Traumatology

CAMARDA L., BOLOGNA E., MORELLO F.*

In cases of posterior root injuries, the transmission of the circumferential hoop tension is impaired, and the menisci tend to be extruded and displaced anteriorly and posteriorly. Recently, the effectiveness of meniscal root repair has been demonstrated to restore the loading profiles to the intact knee, for both medial and lateral meniscus. The number and size of sutures used during MRR could have a role to obtain a suboptimal construct, resisting to elongation during biomechanical tests. The fact that mostly meniscal root repair biomechanical studies were performed using a porcine model has offered a base for comparative studies with human menisci which present an extreme variability, mainly linked to the age, sex, and degree of joint degeneration. The aim of the study was to compare the biomechanical characteristics of posterior meniscal root repair of porcine and human middle-aged menisci using three single sutures technique hypothesizing that both constructs have similar properties. In vitro biomechanical testing was performed using 12 porcine menisci and 12 human menisci. All menisci were sectioned at the midpoint of their circumference and mounted on an electro-mechanic testing machine. The posterior root was sutured with three single stitches using a No. 2 non-absorbable suture. All specimens were subjected to cyclic axial loading followed by load-to-failure testing. Displacements were recorded at the conclusion of cycles 1, 100, 500 and 1000 cycles. Further, load-displacement curves of each specimen were recorded and analyzed to determine the cyclic stiffness at the 500th and 1000th cycle.

A higher elongation of the human specimens was observed after 1, 100, 500 and 1000 loading cycles, when it was compared to porcine specimens ($p < 0.05$). The total displacement amount of the porcine specimens at the 1000th cycle was $2.2 \text{ mm} \pm 0.1$. Similarly, the total displacement amount of the human specimens at the 1000th cycle was $3 \text{ mm} \pm 0.5$. Higher stiffness was observed in the porcine group at the 500th and 1000th cycle.

Three single sutures technique for meniscal root repair appears to be biomechanically effective for both human and porcine menisci.

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Scuola di Specializzazione in Urologia

Prof. A. Simonato

L'Urologia italiana nasce a Palermo ai primi del 900 quando Michele Pavone Tesauro realizza il primo reparto urologico in Italia, avendo avuto l'incarico dell'insegnamento alla regia università di Palermo.

Il prof. Michele Pavone Junior tra gli anni trenta e gli anni 50 ebbe la prima cattedra di urologia in Italia e fondò la scuola di specializzazione in urologia.

Da allora i direttori furono i Proff. Santi Furnari, Michele Pavone-Macaluso, Darvin Melloni, Carlo Pavone, Alchiede Simonato.

Centinaia sono stati gli specializzati in urologia di questa prestigiosa scuola.

Attualmente è capofila di un consorzio che comprende le Università di Palermo, Messina e Catania e gestisce 6 posti ministeriali per anno.

I docenti della materia sono il Proff. A. Simonato, C. Pavone, V. Serretta, N. Dispensa, M. Vella.

Numerose materie fanno parte del piano di studi, dall'anatomia alla Chirurgia Urologica.

L'obiettivo è la formazione di uno specialista che nella specialità sia competente nella diagnosi, nella terapia (chirurgica ed endoscopica) e nella ricerca in oncologia, calcolosi, andrologia, urologia funzionale e ginecologica, patologie prostatiche, infezioni delle vie urinarie.

Attualmente non vi sono specializzati di questa scuola di specializzazione senza lavoro.

Vi è una carenza nazionale di specialisti e con l'incremento dell'età della popolazione si può prevedere come verosimilmente ci sarà un aumento del fabbisogno di specialisti urologi.

Pre-operative risk assessment by ASA score and modified Frailty Index (mFI) in oncological and non oncological urological surgery

Urology

BILLECI S.*, RESIDENT IN UROLOGY. TUTOR: PROF. SERRETTA V. DIRECTOR OF SCHOOL: PROF. SIMONATO A.

INTRODUCTION: Elderly patients are a vulnerable population at increased risk for treatment-related toxicity. Almost 25% of the urological population is older than 75 years. Methods to reduce the morbidity from surgery are eagerly awaited. The ASA physical status classification system is a system for assessing the fitness of patients before surgery worldwide adopted. A frailty index predicting adverse outcomes in urologic oncological major surgeries was validated by Lascano (1) and simplified by Chappidi (2) as a pre-operative predictor of complications following radical cystectomy. The aim of our prospective study was to compare the modified frailty index (mFI) and the ASA score in consecutive patients undergoing urological procedures for oncological and non-oncological diseases. Moreover mFI was compared to ASA score.

METHODS: Consecutive patients undergoing urological procedures were prospectively entered. The surgical intervention were classified as follows: 1. Major open/laparoscopic; 2. Lower urinary tract endoscopy; 3. Upper urinary tract procedures; 4. Minor surgery. For all patients age, ASA score, BMI, serum albumin, smoking history and routine hematological exams were preoperatively recorded. mFI was calculated. Operative time, hospital length of stay and post-operative complications according to Clavien-Dindo classification were recorded.

RESULTS: 247 consecutive patients, 203 men and 44 women underwent urological surgery. Age was over 75 years in 53 (21%) patients. Patient characteristics are given in table 1. While 239 (97%) were assigned in ASA 2 and 3 categories, they resulted more widely distributed among the 5 mFI levels. Particularly of the 165 patients classified as ASA 3-4, 37 (22.4%) only were allocated in 3-5 mFI index and on the contrary of the 82 patients in ASA 1-2 classes, 79 (96.3%) were allocated in 0-2 mFI categories. At univariate analysis both ASA and mFI were not associated with any complications ($p=0.76$ and $p=0.67$), serious complications ($p=0.06$ and $p=0.49$), and late complications rates ($p=0.46$ and $p=0.28$). mFI was associated with age ($p < 0.05$) only, while ASA index only with age ($p < 0.05$), readmission rate ($p=0.03$) and length of hospital stay ($p=0.004$).

CONCLUSIONS: A correspondence between ASA and mFI emerges only for low risk classes, since 22% only of the patients classified as ASA 3-4 resul-



ted allocated in the corresponding high risk classes of mFI. In Both mFI and ASA were not associated with complication incidence when oncological and non oncological urologic surgery is considered.

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The association between post-orgasm urine sperm count and seminal vesicle volume can discriminate between retrograde ejaculation and anejaculation in patients under treatment with α 1A-blockers for lower urinary tract symptoms

Urology

GUZZARDO C. *; PAVONE C.; SIMONATO A.

OBJECTIVE :To investigate the physiopathology of ejaculatory disorders (EjD) induced by α 1A-blockers, in patients with moderate-to-severe lower urinary tract symptoms (LUTS) secondary to benign prostatic enlargement. To discriminate retrograde ejaculation (REj) from anejaculation (AEj) through the association between the post-orgasm seminal vesicle volume and the presence of sperm in mid-stream urine.

MATERIALS AND METHODS: Therapy-naïve male patients with LUTS and without previous EjD were treated with α 1A-blockers. Pre- and under-treatment EjD were investigated through question 4 of the 4-item Male Sexual Function questionnaire (MSF-4 Q4) and the Male Sexual Health Questionnaire for Ejaculatory Dysfunction Short Form (MSHQ-EjD-SF). After 12 weeks, post-orgasm urine was collected for sperm count and seminal vesicle volume was calculated through trans rectal ultrasound.

RESULTS: All 42 patients reported with EjD under treatment with α 1A-blockers: MSF-4 Q4 and MSHQ-EjD-SF Q4 scores were significantly higher ($p < 0.001$) and MSHQ-EjD-SF Q1-3 score was significantly lower ($p < 0.001$) than before. Post-orgasm seminal vesicle volume was significantly higher in patients with post-orgasm sperm-negative urine (AEj), and lower in patients with post-orgasm sperm-positive urine (REj; $p < 0.001$).

CONCLUSIONS: We clearly demonstrated an association between post-orgasm seminal vesicle volume and sperm count in the post-orgasm mid-stream urine in patients treated with α 1A-blockers for LUTS, strongly confirming the hypothesis of a dual etiology for EjD (REj vs. AEj) induced by α 1A-blockers.

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Robotic Urethral Fixation: a feasibility study

Urology

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A fundamental goal for patients who underwent radical prostatectomy is urinary continence recovery. Several surgical techniques were proposed with the aim to improve this outcome (1). Previously, we described an original surgical technique (Urethral-fixation) in patients who underwent retropubic radical prostatectomy (RRP) reaching a significant improvement of early urinary continence recovery in comparison with the standard technique. The Urethral-fixation technique is based on the new concept to fix the urethral stump laterally to the levator ani muscle and to the medial rafe (2).

The objective of the present study is to demonstrate the feasibility of the surgical technique based on fixing the urethra in patients undergoing a robot-assisted radical prostatectomy (RARP).

We prospectively collected 13 cases receiving RARP for localized prostate cancer from February 2019 to June 2019 in the Urological Clinic of the University of Messina. All patients agreed to participate and authorized data collection for scientific purposes. All the procedures were performed under general anesthesia by one expert surgeon who had completed > 100 RARP before the beginning of the present study. In all the surgical procedure, we fixed the urethral stump deeper to the medial dorsal raphe using a 3-0 polydioxanone (PDS) suture at the 6 o'clock position before completing the incision of the urethral wall. This suture in PDS were passed back to the bladder neck in reverse order. Then, the urethrovesical anastomosis was completed with two running barbed suture in V-lock 3-0 according to Mottrie technique (3). No intraoperative complications were observed during this step of the procedure. No anastomotic leakages were observed. Grade 3 postoperative complication occurred in 1 (0.8%) patient. Only 11 patients had completed the follow-up at 1 and 4 weeks after catheter removal. At 1 week, 8 (72%) patients were continent (0-1 pad/die). At 4 weeks, 10 (90%) patients were continent. Only 7 patients had completed the follow-up at 8 and 12 weeks after catheter removal. At 8 weeks and 12 weeks all patients were continent.

This preliminary study demonstrated the feasibility of U-fixation using the robotic approached and showed promising results.

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Prostate cancer and BPH: The role of inflammation and metabolic syndrome

Urology

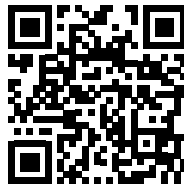
DOTT. SALICI A.

Prostate cancer (PCa) is the most frequently diagnosed malignancy in industrialized nations and the sixth leading cause of cancer death among men worldwide. The rate of PCa in Western countries is 10-15 times higher than in Asian countries; however, in recent decades, the incidence of PCa in Southeast Asia has clearly increased: this increase can be traced to the gradual approach to the Western lifestyle by the Asian population, including sedentary habits and a fat diet. The established risk factors are age, race (more predisposed Africans) and familiarity. Current epidemiological and experimental studies suggest the emerging hypothesis that the metabolic syndrome (MetS) may play a role in the development and progression of different neoplasms. MetS is a common clinical condition with a complex etiology, including fat intake, sedentary lifestyle and genetic factors. Furthermore, MetS is a cluster of risk factors for cardiovascular and metabolic complications, including visceral obesity, hypertension, hyperglycemia, low levels of high density lipoprotein (HDL) and hypertriglyceridemia. Met has been proposed as one of the main causes of PCa geographical incidence variability, as well as its related mortality. In particular, the association between MetS and PCa has been strengthened on the basis of an increase in the incidence of PCa among Asian migrants, suggesting that westernization is an important risk factor for PCa. This condition characterized by insulin resistance and hyperinsulinemia, would cause an increase in circulating proinflammatory cytokines, including insulin like growth factor 1 (IGF-1), a potent mitogen factor and inhibitor of apoptosis. Other major changes include hormonal changes (such as increased serum estradiol levels, reduced sex hormone binding globulin and decreased free testosterone level). Finally, chronic prostatic inflammation observed in MetS patients is associated with an prostatic environment enriched with cytokines, inflammatory mediators and growth factors, which can lead to uncontrolled proliferation. This results in a greater urinary symptomatology of the lower urinary tract (LUT), a greater prostatic volumetry and an annual increase in volume of benign prostatic adenoma (BPH). These evidences renew the interest towards those risk factors that we may controlled, which would seem to play a crucial role in the carcinogenesis of prostate cancer.

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L'evento "La prima giornata delle Scuole di Specializzazione del DiChirOnS" del 21 giugno 2019, svoltosi a Palermo presso l'Aula Maurizio Ascoli dell'AOUP "P. Giaccone", così come la raccolta degli abstract in questo volume, rappresentano la volontà del Dipartimento DiChirOnS (Discipline Chirurgiche Oncologiche e Stomatologiche) di valorizzare i giovani laureati delle Scuole di Specializzazione afferenti al Dipartimento, di creare un momento di aggregazione e di multi-disciplinarietà, di moderna accademia.

La ricerca medica è il cardine stesso non solo della formazione ma della futura professione, perché lo specialista dovrà essere sempre affamato di evidenze e di nuove robuste ricerche, nel rispetto dei pazienti che curerà.

Per il completamento dell'assistente in formazione, in qualsiasi ambito di competenza, è indispensabile non soltanto il *know how*, ma il riconoscimento della necessità del confronto e del superamento delle barriere per valorizzazione l'individuo "specialista", e quindi il suo passaggio nel mondo del lavoro, ma anche per la valorizzazione del rispetto della vita e della dignità del malato con una ricerca sempre più all'avanguardia. Questo volume è una piccola pietra miliare del rinnovamento del DiChirOnS, in seno all'Ateneo, ed è prova dell'aggiornato patto con i nostri assistenti in formazione, linfa vitale del nostro Policlinico e, in prospettiva, della nostra Sanità.

Olga Di Fede
Eugenio Fiorentino
Giuseppina Campisi

