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Exploring the Future of Radiology

Francesco Sardanelli, Professor of Radiology
******@***grupposandonato.it

Editor-in-Chief - European Radiology Experimental
Professor - University of Milan
Research Hospital Policlinico San Donato Milan, Italy

LinkedIn

ESR TO LAUNCH NEW JOURNAL, EUROPEAN RADIOLOGY EXPERIMENTAL

Medicine is facing an increasing rhythm of innovation. Without any doubt, those medical specialties who will guide the innovation will have the best professional position. This is true also for medical imaging. The role of radiologists in the next decades depends on their ability to be a major force driving the introduction of new imaging modalities and techniques to be used for individual risk stratification, diagnosis, prognosis and image-guided therapy (interventional).

In this context, the Board of Directors of the European Society of Radiology (ESR) decided to expand the ESR journal family, launching a new journal, online-only and fully open access, published by Springer: European Radiology Experimental. Submissions to the new journal will be possible as of September 2016, and the first articles will be published by the next European Congress of Radiology (March 1-5, 2017).

The main aim of the new journal is to foster a stronger and stronger connection of radiology with the experimental setting and basic science. This connection is evident for imaging research concerning phantom studies, cell models and radiobiology, animal models, new modalities/techniques (including molecular imaging, hybrid imaging, optical and opto-acoustic imaging), new contrast materials, tracers, and theranostics, and all their interplays. However, the new journal will also welcome reports on: three-dimensional modelling, printing and simulation; advanced teleradiology (including virtual interaction between physicians and patients); and new image reconstruction algorithms and post-processing.

Moreover, the term “experimental” has also a general meaning as opposed to observational, thus including those studies in which one experiment is performed to observe one outcome measure, reducing the underlying variability: a planned variation under controlled conditions. This applies also to studies on humans, especially if they are proof of concept or explorative studies, such as those reporting secondary endpoints of large clinical trials, or those regarding automatic detection and diagnosis where, even using retrospective datasets, new methods are prospectively applied for a better performance. Also new methodological approaches to the design of clinical studies will be considered. In the current era, when typical randomised controlled trials and also large prospective comparative studies imply a high cost, we should perform big data analysis of the huge amount of information we have in our RIS -PA CS systems, thus transforming already stored information into new knowledge. This approach may allow offering a low-cost contribution to demonstrate the crucial role of radiology in modern evidencebased medicine, which is a key factor for a patient-centred high-quality healthcare.

A special place will be reserved to those manuscripts reporting innovation for interventional radiology, as this field is a major asset to increase the clinical role of radiology. Great attention will be paid to imaging biomarkers, from the proof of principle to standardisation (the latter being an unresolved issue, especially for MRI -derived parameters), and to radiogenomics, exploring the correlation between radiological phenotypes and genotype of individual patients and individual lesions, with a future role especially in cancer imaging. Last but not least, the journal will offer a window also to another piece of the future: clinical decision support systems for patient management, including decision making for ordering

imaging studies. The amount of knowledge of medicine and medical imaging is superior to any human ability to memorise and correctly exploit it in favour of patients. Every day, hundreds of new reports appear online. Only a smart use of information technology can help us.

All these goals imply a strong commitment to include also non-radiologists as journal board members, reviewers, and authors, with a special welcome to physicists, biologists, chemists, information technology experts as well as pathologists, geneticists, or colleagues from other medical specialties, or any other professionals with an interest in innovation in radiology.

Finally, European Radiology Experimental will be an onlineonly fully (gold) open-access journal. The European Union asked all papers deriving from projects supported by public funds to be freely available as soon as possible for reading and redistribution, an approach already used in the United States. The debate about free availability of the results of scientific research is ongoing also outside medical journals and accessibility has to be combined with economic balance. The new journal will work for this.

Charles Darwin said: “It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.” European Radiology Experimental will try to be a pivotal force in reporting and debating the change in medical imaging.

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